

MATERNAL HEALTH AND DRUG ABUSE

PERSPECTIVES ACROSS EUROPE

Edited by

Alex Baldacchino
Marco Riglietta
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European Collaborating Centres in Addiction Studies

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Foreword - Drugs and Maternal Health

Interest in the effect of maternal drug abuse on the child dates back nearly a century when maternal addiction to morphine was the main problem. Since then the problem has diversified because of the phenomenon of multiple drug use and the higher prevalence of psychotropic drug use including alcohol and tobacco by women. Now it involves a wide variety of drugs with consequent complexity of the associated problems for both mother and child.

Maternal drug abuse may affect the child at every stage of its development: the utero-ovarian environment may not be optimal, the neonatal period may be complicated by a drug withdrawal syndrome, and, if drug abuse continues, the child's physical, emotional and behavioural development may be adversely affected by growing up in a drug taking environment. All of these problems have been compounded within the last couple of decades by the advent of HIV/AIDS.

The abuse of drugs by women of child bearing age is not a new or even a surprising phenomenon, but, with the possible exception of the abuse of prescribed psychotropic drugs and "over the counter" analgesics, male drug abusers have always outnumbered female drug abusers. This remains the case today but the gap is closing, so that most epidemiological studies now show a steadily increasing proportion of young females abusing a wide range of drugs. This situation has serious implications not only for the women, often no more than girls, who are engaging in this dangerous practice, but also of course for the children whom they are likely to conceive. Any drug abuse by a pregnant woman or by a mother is always a cause for serious concern. That she should engage in such self-damaging behaviour is worrying enough, but the risk of harm to a vulnerable foetus, neonate, infant or child immediately intensifies that concern considerably.

The antenatal care of the pregnant drug addict or drug abuser has exactly the same aims for the non drug abuser - to keep the woman in good health for her own sake, and to give her the best chance of delivering a healthy child. Achieving these aims is often complicated not only by the pharmacological effects of the drugs the mother uses but also by her lifestyle. Being pregnant and having a baby can be both exciting and stressful.

The most popular drugs in Europe are alcohol, tobacco, caffeine, tranquillisers, painkillers and sleeping pills. These are all drugs that are usually, although not always, obtained from a legal source and of course some people use illegal drugs such as cannabis, heroin, cocaine and hallucinogens. Any drug taken during the pregnancy passes onto baby through the placenta. Because the baby's system is much smaller than the mother, and still developing, it can't handle drugs as easily or as quickly as the mother can. Each person and each pregnancy is different and how drugs will affect the baby depends on a lot of things such as the type, the amount of drug(s) used, the life style, general health status of the pregnant woman and stage of the pregnancy. Most of these drugs can seriously affect the health of

the mother they can also cause complications during labour, and serious problems for a newborn baby. Alcohol for example passes freely across the placenta and so when the mother has a drink the baby also has a drink and the baby stays drunk for as long as the mother does and indeed the mother can say no to another drink when the baby cannot and evidence is emerging that repeated small amounts of alcohol may cause some damage to the unborn baby. Miscarriage, mental retardation and slow growth patterns in the child can be caused by daily/regular drinking of any amount of alcohol and the risk of damage increases the more the mother drinks and the greatest risk to the baby is during the first three months of pregnancy. Each class of drugs have their own specific characteristics and the problems associated with polydrug abuse is further complicated by a host of bio-psycho-social factors.

The European Collaborating Centres in Addiction Studies' maternal health monograph is an attempt to identify the common issues across socio-cultural context of European countries not only in relation to the nature and recognition of the problem but also the examination of the policy and practices in the maternal health care of individuals with a drug abuse problem. It is quite evident that there are common features and similarities of views and practices but there are also differences, even within the same country, between practitioners in the field in the way they see the most appropriate intervention. Although everybody agrees with adequate counselling, support and social care, not everyone shares the same view about the type of drug to be prescribed for the mother or the baby, the dose of drugs, abstinence, and the role of substitution therapy. However it is quite clear that there must be close co-operation and collaboration not only between the various agencies looking after the pregnant women but between the pregnant women and the members of the therapeutic teams and it should be emphasised that the baby should not be ignored as a partner in this working together, often providing a signal of his/her distress to the mother which has to be communicated to the treatment team.

The authors of different chapters take full responsibility and authority for the information and data they have provided in their papers and ECCAS, as an organisation, does not necessarily share all the views and opinions expressed in this monograph. The collection of these papers in this form provides a wealth of knowledge on expert opinion and professional practice in different parts of Europe. ECCAS is delighted that experts from member countries have undertaken this scholarly review and have shared their knowledge and experience on this very important aspect of the care of the individuals with substance abuse and dependence problems. The editors have tirelessly pursued the objective of the production and collation of these papers and ensured there has been no intrusion of the liberty of the authors whenever an opinion has been expressed. ECCAS is grateful to the editors and the authors of this very valuable document, which is another step towards fulfilling one of the important objectives of the organisation.

Professor Hamid Ghodse
Director, International Centre for Addictions Studies and
President European Collaborating Centres in Addiction Studies

April 2003

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Contents

		<i>Page</i>
Foreword	Drugs and maternal Health	v
	<i>H Ghodse</i>	
Acknowledgements		vii
Contributors		viii
Contents page		xi
List of tables and figures		xiii
Part I	Introduction	1
Introduction	Maternal health and drug abuse – an overview <i>C Kouimtsidis, A Baldacchino</i>	3
Chapter 1	Pregnancy, substance misuse and the health of the infant – a biological perspective <i>C Kouimtsidis, A Baldacchino</i>	7
Chapter 2	Maternal health and drug abuse – a psychological perspective <i>O Rosenblum, C Guionnet</i>	19
Chapter 3	An overview of service delivery for the pregnant drug user and dependent neonate <i>C Kouimtsidis, A Baldacchino</i>	27
Part II	Perspectives across Europe	35
Chapter 4	Maternal health and drug abuse in Denmark <i>L Ipsen, B Sommer</i>	37
Chapter 5	Maternal health and drug abuse in Germany <i>N Sherbaum, J Blanke, L Wolstein, M Gastpar</i>	41
Chapter 6	Maternal health and drug abuse in Italy (A) Bergamo: <i>L Tidone, M Campana, P Colleoni, M Riglietta</i> (B) Padova: <i>L Furia, B Della Barba, F Schifano, N Savani</i>	47

Chapter 7	Maternal health and drug abuse in Malta <i>AM Vella</i>	61
Chapter 8	Maternal health and drug abuse in Poland <i>Grażyna Świątkiewicz</i>	67
Chapter 9	Maternal health and drug abuse in Portugal <i>I Flores, A Silva, A Magalhães, E Galvão, G Pimentel, MO Santos, M Carvalho, M Salgado, P Caevalho, P Coelho, S Padrão</i>	75
Chapter 10	Maternal health and drug abuse in Spain <i>M Torrens, A Paya</i>	83
Chapter 11	Female drug users in the UK and their children: an overview <i>JM Corkery</i>	93
Chapter 12	Maternal health and drug abuse in the United Kingdom (A) Essex, England: <i>L Waldron, A Baldacchino</i> (B) Southwest London, England: <i>J Treganza</i> (C) Fife, Scotland: <i>E Bate, J Leggate</i>	117
Part III	Maternal health and drug abuse	135
Chapter 13	From reality to a dream? Reflections on an <i>ideal</i> model treatment for pregnant drug users <i>I Flores, A Silva, A Magalhães, E Galvão, G Pimentel, MO Santos, M Carvalho, M Salgado, P Caevalho, P Coelho, S Padrão, A Baldacchino</i>	137
Appendices		145
Appendix A	Informed Consent Form	147
Appendix B	Pregnancy data sheet	149
Appendix C	Special Care Baby Unit Neonatal Abstinence Scoring System	153
Appendix D	Information concerning newborn	157

List of tables and figures

No.	Title	Page
Table 5.1	Methadone maintenance in two maintenance clinics of Essen University	44
Table 6.1	Facilities provided by addiction and family services, Bergamo	49
Table 6.2	Summary data for pregnant addicts in Bergamo,	51
Table 7.1	Medication of pregnant drug users and treatment of neonates, Malta, 1999	65
Figure 9.1	Activities and staffing of CAT do Conde	77
Table 9.1	Summary of admissions to CAT do Conde, 1999 and 2000	80
Table 9.2	Results of tests for hepatitis B and C, and HIV amongst admissions to CAT do Conde, 1999 and 2000	80
Table 10.1	Hepatitis B and C, HIV status of pregnant drug users attending treatment services at the Hospital del Mar, Barcelona, 1999 and 2000	90
Table 11.1	Lifetime and last year drug use (%) for women aged 20-24, England and Wales, 1994-2000	95
Table 11.2	Lifetime and last year drug use (%) for women aged 20-24, Scotland, 2000	95
Table 11.3	Percentage positive urine tests for selected substances by gender of arrestees, England & Wales and Scotland, 1999	98
Table 11.4	Key partners for treatment agencies in providing services to female drug users in the UK	104
Figure 11.1	Scottish Executive schema for working with pregnant drug misusers	109
Figure 12.1	Staff profile of NEEDAS	119
Table 12.1	Data on pregnancies collected since the multidisciplinary pathway was introduced at Forth Park Maternity Hospital	130
Table 12.2	Pregnant drug users attending Forth Park Maternity Hospital, 1999/2000 and 2000/1	130

Part I

Introduction

Introduction**Maternal health and drug abuse -
an overview**

C Kouimtsidis and A Baldacchino

The difference between male and female substance misusers and the associated implications has been discussed extensively in the literature. It is well documented that women drug users are different from male drug users on several parameters: (i) physiological qualitative differences such as metabolism of substances and vulnerability in drug-related complications; (ii) different psychopathology and (iii) different social roles with associated problems. The 1993 National Institute on Drug Abuse (NIDA) Household Survey indicated that the number of adult women who ever used illicit drugs was positively correlated with income, while the number that used illicit drugs at least monthly was inversely correlated with income. Studies have also shown a close association between childhood sexual abuse and substance use, implying that women often use drugs to soften the psychological pain associated with that abuse (Howell *et al* 1999).

Pregnancy is an important period in the life of a woman and it is associated with unique biological and sociological changes some of them time-limited for the period of pregnancy and some of them for the rest of her life. This is also the only period that the boundaries between two living organisms are so blurred and that any event (physiological, psychological or others) will have an immediate effect on the infant.

Women who are pregnant and substance misusers, are in a contradictory position. In theory they are highly valued by society due to their pregnancy but they are also immediately devalued or even punished for being drug users, without even enjoying the sympathy or support that other drug users may benefit from a non-stigmatising approach to substance misuse problem. On the one hand they are more vulnerable than the rest of the population or other drug users. On the other hand pregnancy provides motivation for lifestyle changes and many women want to stop using drugs in the interest of their babies. Studies and clinical experience suggest that the rate of use for all substances declines three months prior to pregnancy and continues throughout the pregnancy. However, such a decline is less pronounced for cocaine (especially 'crack') and cigarettes than for alcohol and marijuana (Howell *et al* 1999). The 1995 National Household Survey in USA found that nationally 7.2% of women aged 15 to 44 years who were not pregnant used illicit drugs at least once during the past month, compared to 2.3% of pregnant women in the same age range. Poor pregnancy outcome in women drug users may be due not so much to the drugs as to the underlying socio-economic deprivation or the effects of drug use on lifestyle (Hepburn 1993).

In USA the rise in use of cocaine, opiates and marijuana is most evident in the 12 to 25 year old age group, which encompasses more than 40% of the women who are delivered of live infants (Bauer 1999). Estimates of the number of pregnant women who use drugs vary. Most of the USA national estimates are derived from surveys. The National Pregnancy and Health

Survey 1996, estimated that 5.5% of pregnant women used an illicit substance some time during pregnancy and 18.8% used alcohol and 20.4% smoked cigarettes. The prevalence of drug abuse was greater among women who were older, white, less educated, unmarried, smokers, alcohol drinkers, or had a history of sexually transmitted disease. In addition, a growing number of adolescent mothers may not yet be drug dependent but may be experimenting with drugs (Howell *et al* 1999; Ebrahim *et al* 1999).

A survey conducted at the Liverpool Drug Dependency Clinic in the early nineties indicated that 32% of women attenders were sexually active and used no form of contraception and 16% of all women attenders were actively planning to become pregnant (Morrison *et al* 1995).

In addition to the high prevalence of substance misuse during pregnancy one needs to take into consideration the complex interactions present between such a user group and the quality and effectiveness of services and treatment interventions provided.

In 1988, the New York State Division of Substance Abuse Services estimated that 97% of the substance-using women giving birth in New York State were not in treatment. Furthermore, 50% of more than 10,000 foster care placements in New York City in 1992 were drug-related. In 1989, only 32% of 47 drug-free treatment centres would accept pregnant women (Lieberman 1998). Another study in Los Angeles County showed that about 40% of the programmes reported not being able to serve pregnant women, including almost half of the hospital inpatient programmes and a quarter of the outpatient drug-free programmes (Howell *et al* 1999). Forty-two percent of the programmes reported having pregnant patients enrolled at the time of the survey, ranging from 11% of the hospital inpatient programmes to 61% of the methadone maintenance programmes (Polinsky *et al* 1998).

Another study used simulated calls to assess whether exclusion based on pregnancy, method of payment, or the need for child-care is widespread in New York City or not. The survey included a total of 294 outpatient and residential drug treatment programmes. Although the majority of the programmes accepted pregnant women, method of payment proved to limit access significantly. If the woman was seeking child-care, the options for drug treatment were severely restricted. More programmes treating crack addiction were willing to accept pregnant women than were those treating heroin addiction (90% versus 73%). In most instances respondents did not provide an appointment or referral for medical care (Breitbart *et al* 1994). In 1995 the UK Department of Health published a survey on maternity services for drug misusers in England and Wales. This survey suggested that not many obstetric or maternity services had seen or did know how to implement the recommendations made by the Advisory Council on the Misuse of Drugs in 1989 (Siney 1998).

Furthermore, using California Medicaid data researchers found that substance-exposed infants cost 47.3% more than other infants in the late

1980s. The higher cost was attributable to longer stays in hospital (Howell *et al* 1999). This has a lot of implications for service development.

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Chapter 1 Pregnancy, substance misuse and the health of the infant – a biological perspective

C Kouimtsidis and A Baldacchino

Maternal health

Research suggests that pregnant women abusing drugs have an increased risk of medical complications, that is directly associated with their drug use or a drug orientated lifestyle such as prostitution, shoplifting, forgery or selling narcotics. Many women have histories of physical, psychological, and/or sexual abuse (DePetrillo and Rice 1995). In the Maternal Lifestyles Study (conducted between 1993-1995) violence as the cause of hospitalisation during pregnancy was 17 times greater amongst the drug using pregnant women than the non-drug using pregnant women (Bauer 1999).

The association between drug use and syphilis is well established but an association between drug use and gonorrhoea is not that consistent. Many cross-sectional studies have shown that the use of illicit drugs, particularly 'crack' cocaine, is a risk factor for syphilis. In one study 1.4% of pregnant women had a serological diagnosis of syphilis. The prevalence of syphilis was greater among women who were aged 20 years or older, black, unmarried, who acknowledged the use of illicit drugs, alcohol, or tobacco, and who had a history of sexually transmitted diseases (STD). In the same study 4.8% of pregnant women had a diagnosis of gonorrhoea. The prevalence was greater among women who were aged 19 or younger, black, unmarried, smokers, and who had a history of STD (Ebrahim *et al* 1999). In the Maternal Lifestyles Study syphilis was occurring in more than 11% of the drug using group compared with 1.5% of the comparison group. Gonorrhoea was 2.5 times more frequent but less prevalent than syphilis (Bauer 1999).

Intravenous drug users form the largest known risk group for hepatitis C. Mother to infant (vertical) transmission is estimated to be between 0-15% and exists mainly in mothers who are also HCV RNA positive (Ebeling 1998). Of the eighteen women who were HCV seropositive and breast feeding (66% of whom were serologically HCV RNA positive), none had detectable HCV RNA in breast milk (Garland *et al* 1998).

Human Immunodeficiency Virus (HIV) prevalence is high within the overall substance misuse population. In the Maternal Lifestyle Study (1993-1995), HIV screening revealed positive results in 12% of drug abusing pregnant women compared with 2% of the controls, and Acquired Immuno Deficiency Syndrome (AIDS) was 17.5% times more frequent in the drug-exposed mothers than the non drug-exposed group (Bauer 1999). In a study of all women living in Edinburgh who were delivered of live babies, 62% of the women identified as infected were intravenous drug users (IDU) and 32% were non-IDU who had engaged in sexual intercourse with an HIV-infected IDU (Jonstone *et al* 1998). In London more than 80% of infected patients remain undetected during their pregnancy. Reduction of HIV prevalence can be achieved by preventing HIV infection of mothers, the provision of voluntary

HIV testing, the provision of free or low cost prenatal care, the encouragement of HIV+ mothers not to breast-feed and the provision of viable alternatives to breast feeding. Access to anti-HIV drugs during pregnancy is crucial because zidovudine given during pregnancy and after birth reduces the risk of vertical transmission by 68% (Jonstone *et al* 1998).

It has been argued that every contact with a health care service provided - whether specialist, generalist, in prison or in the community - should be seen as an opportunity for maximising health gain of substance misusing population. Obstetric units in particular should test all pregnant women for HbsAg (Hepatitis B surface antigens), and hepatitis C and should offer hepatitis B vaccine to the woman, her partner and infant (Heptonstall 1999).

Perinatal complications of substance misuse

Most pregnant women are polydrug users (Brown *et al* 1998; Jarvis and Schnoll 1994). Cigarette smoking is commonly found among women who use methadone and cocaine and marijuana is the second most widely used illicit drug among these women (Brown *et al* 1998). In addition substance misuse during pregnancy is associated with socio-economic deprivation, which in turn affects nutritional state and general lifestyle. A French study of 698 women identified that heavy drinking was related to heavy cigarette smoking, older maternal age, a high parity (already having had a large number of children), a low-level education, maternal and paternal unemployment (Larroque and Kaminski 1998).

Polydrug use with a lack of control for the quantity and quality of drug used or the timing of drug use during pregnancy could explain the conflicting results from human studies on the effect of substance misuse on the infant (Howell *et al* 1999).

Opioids

Low birth weight, pre-term birth and small head circumference are the most commonly reported neonatal complications as a result of maternal opioid abuse during pregnancy. One study reported that from the first 200 babies born to women opioid users, 9.5% were pre-term (before 37 weeks), 12.5% were of low birth weight (under 2.5 kg) and 11% were small for gestational age (below the 10th percentile weight for gestation) (Hepburn 1993). Studies were unequivocal when detecting foetal exposure to opioids and controls using the Mental Developmental Index (MDI) and Psychomotor Developmental Index (PDI) (Davis Eyler and Behnke 1999).

Cocaine

Studies revealed that in utero cocaine with or without polydrug exposure is associated with significant increases in perinatal morbidity and length of hospital stay. Recent reports suggest that the effects of cocaine on the newborn are more modest and subtler than what originally had been suggested (Greene *et al* 1998). The definite impact of cocaine/'crack' on the foetus is still not well defined for many of the same reasons that affect all drug-use studies, polydrug use appears to be a major confounding factor.

Intra-uterine growth retardation is the most consistently reported observation in cocaine-exposed infants. It is possible that growth retardation is more affected by many medical and social comorbidities (poor physical health, poor nutrition) associated with drug abuse than by the cocaine itself. For example more than 85% of cocaine users smoke cigarettes, another factor connected with growth retardation. The mean reduction in birth-weight in cocaine-exposed infants reported by several investigators ranged from 100-500 g (Pastrakuljic *et al* 1999). The potent vasoconstrictive effect of cocaine, due to increased levels of catecholamines in maternal plasma, has been suggested to be linked to diminished uteroplacental blood flow in several species resulting in foetal growth retardation. In addition to the above, a reduced placental amino acid transfer has a central role in foetal growth retardation, because the developing foetus is totally dependent on maternal amino acid supply for protein synthesis and accumulation of foetal mass (Pastrakuljic *et al* 1999).

Spontaneous abortion and premature birth are other common findings. The association between spontaneous abortion and substance misuse was examined in a group of pregnant women attending an inner-city emergency department. The high prevalence of cocaine and tobacco use suggests that a substantial proportion of abortions are attributable to exposure to these two substances. No dose-response relationship was observed, suggesting that any level of exposure to cocaine can be associated with abortion (Ness *et al* 1999).

Cocaine exposure has been associated with respiratory irregularities in the newborn including apnoea and periodic breathing. An increased incidence of sudden infant death syndrome (SIDS) has been also suggested (Bauer 1999).

Other commonly demonstrated concerns include: irregularities in neonatal autonomic regulatory system, sleep disturbances, alterations in acoustic cry measures, and neonatal attention span irregularities consistent with arousal. Several studies performed during the first year of infants' life have found irregularities in visual expectancy, recognition memory, and information processing. During behavioural studies cocaine-exposed infants have been found to be less aroused and responsive to learning tasks, less frustrated during extinction procedures, less engaged during face-to-face interaction and exhibiting a more negative state after interruption (Davis Eyler and Behnke 1999).

Cannabis

Cannabis users are typically younger, of lower socio-economic status, and more likely to use alcohol and cigarettes (but have similar nutritional data), than are nonusers of cannabis (Davis Eyler and Behnke 1999). Cannabis use is related to increase in tremors, startle and motor reflexes, strabismus (squinting), and hand-to-mouth behaviour as well as decreases in optical blinks and habituation at 9 and 30 days in the neonate. There is a significant relationship with decreased attention span, goal directness, object orientation and reactivity to stimulation (Davis Eyler and Behnke 1999). Disturbed sleep patterns specifically associated with first trimester marijuana exposure (and persisting till 3 years of age), are reported. The use of cannabis in addition to alcohol increases by five times the likelihood of features of Foetal Alcohol Syndrome compared to alcohol use alone (Bauer 1999).

Two studies in a rural population in Jamaica, where marijuana smoking is integrated into the sociocultural context, showed that there were no significant differences on day 3 between marijuana-exposed infants and control infants. However, at 1 month the marijuana-exposed infants had significantly higher autonomic regulation scores (better physiological stability). It was argued that the mothers self-selected for using marijuana had relatively higher socio-cultural positions and were more able to promote development (Davis Eyler and Behnke 1999).

Amphetamines

Foetal exposure to amphetamine-type drugs produce intra-uterine retardation, premature delivery and increased potential for increased maternal, foetal and neonatal morbidity.

Benzodiazepines

Benzodiazepines and their metabolites freely cross the placenta. Newborn levels of benzodiazepines in the blood are about 1-3 greater than maternal serum levels. An association between diazepam and an increased risk of cleft lip and/or palate and inguinal hernia was suggested by several studies.

Smoking

Smoking may be the most significant known risk to the foetus. Few human studies have been designed primarily to evaluate the effects of nicotine use during pregnancy on the development of exposed offspring. Growth inhibition is particularly pronounced at birth and affects weight, length, and head circumference. Most studies suggest that these restrictions will resolve by 18

to 24 months of age. Infants often display soft neurological signs in the newborn period. Early behavioural dysfunctions include hyperactivity, poor orientation, and impaired attention; these are transient and rarely persist. An association between maternal smoking during pregnancy and an increased incidence of sudden infant death syndrome has been suggested (Bauer 1999; Davis Eyler and Behnke 1999).

Nicotine smokers reported higher stress levels, less positive interactions with their partners, and less optimism about the future of their relationship. They had also more obstetric complications (Davis Eyler and Behnke 1999) including increased rates of miscarriage and foetal deaths (Pastrakuljic *et al* 1999).

The above effects can be attributed to uteroplacental insufficiency and to direct exposure of the foetus to nicotine. Recent studies show no evidence of nicotine metabolism by the human placenta, suggesting that the human placenta does not pose a metabolic barrier to nicotine transfer to the developing foetus. In addition to nicotine, cigarette smoke contains several gases of pharmacological significance, such as carbon monoxide, hydrogen cyanide and nitrogen oxides. All of these gases in cigarette smoke can cause both placental and foetal tissue hypoxia. In addition, foetal hypoxia, due to increased carboxyhaemoglobin levels, and an attenuated blood oxygen unloading to foetal tissues could affect the transfer of essential nutrients such as amino acids. Some studies show that weight reduction in neonates of smoking mothers is independent of other biological, social and health-care variables. There is a dose-response relationship between the degree of maternal smoking and infant birth weight. Passive smoking is another very important variable affecting both neonates' birth weight and growth retardation (Pastrakuljic *et al* 1999).

Alcohol

Alcohol exposure affects the mental and emotional development of the infant. This in turn predicts the caregiver's quality of interaction to the same infant (Davis Eyler and Behnke 1999). The cerebral cortex and cerebellum appear to be particularly susceptible to ethanol exposure, but there is evidence that even earlier developing brainstem and hypothalamic regions are targets (Levitt 1998).

Teratogenicity (processes inducing formation of foetal developmental abnormalities)

One of the biggest concerns of substance misuse during pregnancy is the potential risk of congenital abnormalities to the foetus. There are several factors that need to be taken into consideration when studying the effect of a specific substance on foetal development, such as route of administration, drug dose and frequency, time of exposure, drug pharmacokinetics, polydrug

use, maternal nutrition and care for the offspring and time of assessment for developmental changes. The spacio-temporal specificity of neural development increases the likelihood that exposure to drugs during specific times will target specific brain areas more readily than others. Additionally, the developmental status of neurotransmitter systems with which drugs may interact is likely to play an important role.

The absence of gross changes only reveals the lack of severe teratological actions of drugs; and an absence of gross behavioural defects should be viewed similarly (Levitt 1998).

Alcohol is the only substance that is clearly teratogenic. Foetal Alcohol Syndrome includes growth retardation, physical anomalies and Central Nervous System (CNS) dysfunction. The full syndrome is relatively rare and is seen in infants of mothers who are heavy users of alcohol throughout the pregnancy. It is considered to be one of the three most common known causes of mental retardation and the only one that is completely preventable. Most alcohol users reduce their alcohol intake during pregnancy, which has resulted in what has become known as Foetal Alcohol Effects. The physical anomalies are most often seen when alcohol is used in the first trimester of pregnancy and growth retardation when it is used during the third trimester. Growth retardation persists with little or no catch-up in later life. An exact dose-response relationship has not been defined. At present no safe level of maternal alcohol use is known. (Bauer 1999)

Cigarette smoking has a variety of potential teratogens, e.g. carbon monoxide results in hypoxic and ischaemic conditions. In general there is a complex combination of delays in developmental maturation, followed by recovery and then late-expressed alterations. The rapid often paradoxical changes in particular markers (e.g. RNA/DNA content) strongly suggest that one needs to view specific nicotine effects with extreme caution, because ontogenetic events, such as cell fate decisions, cell migration, neuronal polarity, or synapse formation have not been measured directly (Levitt 1998).

Although multiple reports have suggested a teratogenic potential for cocaine, no consistent constellation of findings has emerged confirming the initial isolated reports of cardiovascular, CNS, gastrointestinal, urogenital or renal anomalies. Microcephaly, with or without growth retardation, has been a particular concern (Bauer 1999). It appeared that prenatal cocaine exposure was least impressive compared to alcohol and nicotine in generating reproducible changes in behaviour and brain structure. More sophisticated, well-defined behavioural analysis and the application of cellular and molecular methods, has revealed consistent changes in brain structure-function, attributed directly to cocaine's interactions with developing dopaminergic systems in the foetus (Levitt 1998). Cocaine produces a decrease in uterine blood flow while the maternal heart rate, blood pressure, and cardiac output increase. The foetus exhibits hypertension that is greater than if the foetus were made hypoxic in the absence of cocaine exposure (Woods 2000). The results of the Maternal Lifestyles Study suggested an exaggerated susceptibility of the ageing placenta to the vasoconstrictive activity of cocaine

or opiates as infants approach term gestation. The same study did not confirm teratogenic abnormalities although there was an increase in central and autonomic nervous system signs and symptoms in the cocaine- or opiate-exposed cohort. Some studies have reported major congenital anomalies in infants of mothers treated with methadone (Brown *et al* 1998).

Neonatal Withdrawal Syndrome (NWS)

Finnegan's abstinence syndrome describes the physiologic and neuro-behavioural signs and symptoms that often define a substance-exposed infant. Many of the manifestations of NWS occur regardless of the class of drug, including irritability, hyperactivity, abnormal sleep pattern, high-pitched cry, tremor, vomiting, diarrhoea, weight loss, and failure to gain weight. The fact that these symptoms are non-specific makes it difficult to identify NWS unless it is specifically looked for. Infection, hypoglycaemia, hypomagnesaemia, CNS haemorrhage and anoxia have to be excluded. High fever has been associated with NWS although findings are inconsistent. Abnormalities in ventilation are commonplace. If these abnormalities persist (e.g. methadone) it can be associated with Sudden Infant Death Syndrome (SIDS). There is a lack of agreement in the literature regarding the presence and frequency of opiate and barbiturate-induced seizures in NWS (Levy and Spino 1993). The onset of narcotic withdrawal symptoms varies from minutes after delivery to 1-2 weeks of age. They are usually present at birth but may not reach a peak until the third day of life when they are clearly evident.

The neonatal acute abstinence symptoms from opioids combine the symptoms of the adult withdrawal syndrome, with irritability, poorly co-ordinated sucking and, in the most severe cases, seizures and death. With the doses used to suppress craving and withdrawal, methadone can cause a moderately severe syndrome (Jarvis and Schnoll 1994). The syndrome can persist for 2-3 weeks after birth and in the sub-acute form for 4-6 months, with peak at around 6 weeks of age. Abnormalities in the Moro response have been documented as late as 7-8 months of age. Behavioural disturbances (irritability, hyperactivity, feeding difficulties) may persist for periods lasting from 6 months to several years (Levy and Spino 1993).

In a study of infants of mothers on methadone maintenance, 43% of the babies received medication for neonatal withdrawal symptoms (Greene *et al* 1998). In another study, there was a highly significant increase in symptom score of infants whose mothers were on methadone (mean maximum score 10.9), versus those receiving no methadone (mean maximum symptom score 3.4) (Malpas *et al* 1995).

Most studies suggest a statistically significant relationship between maternal methadone dose at delivery and the severity of NWS, the mean duration of hospital stay, the proportion of infants receiving treatment and the mean duration of treatment; all increase markedly with increasing doses of methadone (Dawe *et al* 1992; Doberczak *et al* 1993; Malpas *et al* 1995;

Jonstone *et al* 1998). When infants remain hospitalised, maternal-infant bonding is interrupted and the cost of hospitalisation is increased.

The rate of decrease in serum methadone levels seemed to correlate significantly with the severity of CNS withdrawal signs. Efforts should be made to reduce the dose of methadone as much as possible in order to reduce the severity of neonatal abstinence syndrome (Doberczak *et al* 1993; Malpas *et al* 1995).

Hyperphagia (excess eating) is common in infants withdrawing from methadone. Data collected by retrospective chart review of all infants born at San Francisco General Hospital to women enrolled in a methadone maintenance programme suggested that hyperphagia was occurring in 56% of infants by the second week of life. These infants had lost significantly more weight during the first week of life but they did not have any clinical complication attributable to increased oral intake. No significant correlation between infant oral intake and maternal methadone dose at delivery was found (Martinez *et al* 1999).

Manifestations of barbiturate withdrawal symptoms appear late (10-14 days). The withdrawal is dependent on the duration of the exposure and the specific agent. Withdrawal is unlikely if barbiturates are taken only in the latter part of pregnancy. The duration of symptoms can be difficult to estimate, as the acute or early features (tremors, sleeplessness, hiccups) may be followed by a sub-acute phase (prolonged crying episodes, irritability, sweating, hyperacusis [excessive eating], hyperphagia [abnormally acute hearing or painful sensitivity to sound]) that may last for a few months (Levy and Spino 1993).

Neonatal withdrawal symptoms from benzodiazepines result from prolonged exposure during pregnancy and can produce some symptoms indistinguishable from those associated with opiates. They may be observed shortly after birth but in some cases may take up to 21 days to be evident (Levy and Spino 1993). Floppy infant syndrome with hypotonia, lethargy and sucking difficulties has been reported.

Amphetamines, lysergic acid diethylamide (LSD), and some other agents have not been associated with NWS (Woods 2000). A mild abstinence type syndrome was reported with cannabis. Fine tremors, exaggerated startles and a prominent Moro reflex that persisted for the first several weeks of life were noted. These symptoms rarely required treatment (Bauer 1999).

Cocaine withdrawal symptoms are very mild and some infants give no evidence of symptoms at all. The effect of concomitant cocaine and methadone use on NWS was examined in 68 infants born to mothers participating in a methadone maintenance programme offered through the Substance Abuse Treatment Unit of the Yale University School of Medicine Department of Psychiatry. Infants exposed to both substances had significantly higher first withdrawal scores. However they did not need higher dosage or more days of treatment (Mayes and Carroll 1996).

NWS is a self-limiting condition. In mild cases it subsides within a few days with only supportive therapy. A calm, quiet, warm environment, gentle handling, swaddling to decrease sensory stimulation and frequent small feedings can be helpful. The most common indications for drug treatment are seizures, diarrhoea and vomiting resulting in weight loss and dehydration, inability to sleep and sometimes fever unrelated to infection. Other indications are poor feeding or failure to gain weight and severe hyperactivity and irritability (Levy and Spino 1993).

Phenobarbital controls signs of neonatal withdrawal associated with opiates and barbiturates. Neither dosage nor therapeutic level necessary to control withdrawal symptoms has been optimised.

Paregoric is an opiate and it has physiologic advantage over non-opiate in treating NWS. Studies suggested that there were no seizures occurring in paregoric-treated infants, whereas they did occur with Phenobarbital treated infants (Levy and Spino 1993). Opium preparations are preferred if diarrhoea is part of NWS.

Chlorpromazine controls the CNS and gastrointestinal symptoms of NWS with a minimum of adverse effects. Some authorities are worried about its use in infants for several reasons but mostly because its effects on behaviour are unknown. Clonidine it is not widely used in infants. Total elimination of diazepam and metabolites may take so long that adverse effects occur, such as depression of sucking reflex and late onset seizures, which limit its prolonged use (Levy and Spino 1993).

Later development

Observations of poor mother-infant interaction and poor attachment behaviours have been reported for several drugs (Bauer 1999; Davis Eyler and Behnke 1999). Long-term effects are difficult to prove since it is practically impossible to control for other confounding social factors. Passive postnatal exposure has arisen with cocaine metabolites present in the urine of infants and cotinine present in the saliva of more than 80% of non-smoking adults and children down to 2 years of age which can contribute to a poor family environment (Bauer 1999).

The Maternal Lifestyle Study is the largest clinical study to investigate both the short- and long-term consequences of foetal drug exposure. A one-year follow up suggested that the initial growth and health discrepancies between the groups had resolved (Bauer 1999).

In another study the health and development of children aged 3-7 years born and reared by mothers abusing opiates when pregnant and who remained on a methadone maintenance programme were compared to a group of age- and socially-matched control children. The substance-exposed children were as healthy, in terms of height, physical examination and medical history, as the

control group. They were making similar developmental progress to control children and there was no child in either group with problematic behaviour. The index children, though, did have significantly smaller head circumference than controls (Burns *et al* 1996).

Reports on catch-up growth by 12 to 18 months of postnatal age suggest that cocaine may have an acute but reversible effect on growth. Follow-up studies suggest an effect of cannabis on cognitive function at 4 years but not at 5 and 6 years (Bauer 1999).

Due to the inconsistent findings, the progress of children born from substance misusers/dependent mothers needs to be carefully reviewed by primary health care teams through pre-school surveillance programmes so that any problem can be identified early and appropriate help instituted (Burns *et al* 1996).

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Chapter 2 Maternal health and drug abuse – a psychological perspective

O Rosenblum and C Guionnet

Introduction

Drug addiction and parenting may coincide, since a period of dependence can include the period in which a man and woman may become parents of a child. Any discussion of parenting with regard to dependent individuals requires full understanding of the perinatal period, and should include a study of early relationships, the future of the children involved and the role of the growing family. At the core of any care provided to such parents is the socio-psychological support they will receive.

The concepts of drug taking and maternity are at odds with the ideals of maternity. Addicted future parents often consider themselves to be in a normal situation, especially as the arrival of the baby is expected to enable them to stop drug use. Therefore, there will be a transgression of moral values on the part of a parent when an innocent victim, the child, appears on the scene. The situation of a drug-dependent person embarking on parenthood brings forth feelings of sexuality-related guilt combined with forbidden pleasures, and this involves punishment. Consequently, is parenting just as much of a transgression as addictive behaviour?

The parent, through his or her role as procreator, becomes the accused, when he or she enters the world of addiction.

Maternity and dependence

There is often a link between maternity and a relapse into drug addiction, which aggravates the feelings of guilt in being a mother. Paradoxically however, it is during this period (final weeks of pregnancy and delivery) that prospective mothers come into contact with medical teams. These teams, especially if they are multidisciplinary (obstetricians, paediatricians and psychiatrists) can help women who wish to put an end to their addiction and they can raise the consciousness of those who have not yet considered stopping. One problem in caring for drug-addicted mothers stems from the fact that, guilt-ridden and ashamed, they refuse substitution treatment for fear of losing their offspring - that the child will be placed in a foster home or that parental custody will be withdrawn from them. They feel themselves to be, as perceived by society, "bad mothers", and feel a need for normalization as well as a fear of being judged. In nearly half of all cases, these drug-addicted mothers are single and raise their children alone. Their job situation is often precarious and a considerable number turn to prostitution.

The self-image of these drug-addicted mothers is one of low self-esteem, and they view themselves through a prism where incompetence, self-deprecation and idealization of the child are intertwined. These women are often intolerant of frustrations, and their behaviour is impulsive and poorly thought through. They may have a record of anorexia or bulimia, with feelings of emptiness and boredom. Such unresolved problems can be reactivated during feeding sessions of the baby and can lead to conflicts. It is noteworthy that breastfeeding is rare. Often, drug-addicted women have a subconscious image of a disunited parental couple, where the father is belittled and the mother idealized. This identity crisis leads to a massive and ambivalent attachment to the woman's own mother. The drug-addicted woman, dependent on her own mother, considers her as both good and bad, projecting onto her destructive fantasies which lead to anxiety and guilt. The desire for a child can be part of a means to repair ties with her own mother, while at the same time she disqualifies herself as a mother.

Pregnancy

Drug-addicted mothers concentrate on acquiring the substances they need and are hardly attentive to the early signs of pregnancy. Added to this is a lack of knowledge and denial of the workings of their own bodies, bodies which are at the mercy of the almighty power of the substance. Very often the link between sexuality and pregnancy and thus a child is denied. During sexual relations, there is often frigidity, or a feeling of being raped, evidenced by the fact that prostitution is common and the body is considered to lack value or femininity. The absence of or irregularity in menstrual periods owing to the consumption of heroin confirms the denial of femininity and the feeling of sterility. The illusion of invulnerability and confidence, combined with the amenorrhea caused by the use of the substance, lead to the fantasy of being unable to have a child. Pregnancies are treated more or less seriously, with feelings changing according to the consumption of drugs. The usual perceptions of a fertilized body are lessened. The androgynous aspect, anexoric behaviour, physical degradation and attacks on the body (injections and infections) are witness to the identity crises which many women may have suffered from before drug use. Drug-addicted mothers often have a record of pregnancies and abortions. This degrading of the body enables such women to confirm their reproductive functions while remaining relatively uncommitted to being a mother.

When reliance on drugs is insufficient, maternal desires may appear. The child can then be seen as a substitute for the substance, and will be considered as a saviour. The desire for a child, or an accidental pregnancy, can mean for a drug-addicted woman that she is attempting to find from the outside what she cannot find from within, in order to finally stop drugs.

Birth

Guilt over drug addiction can mean that delivery will take place in an atmosphere fraught with fear of death or malformation. This can lead to emotional stupefaction and an incapacity to communicate with the baby. During pregnancy, women can alternate between guilt-caused depression and anxiety over their capability to be a mother. After withdrawal from drugs, post partum, some mothers are depressed but cannot identify their condition as such. This leads to weak interaction with the baby and increased guilt about being an unfit mother. For these mothers, even those on methadone, the withdrawal syndrome of their baby is seen as their fault, and the suffering of the child aggravates their guilt and stigmatizes their maternal role which they already consider deficient. Post-partum drug relapses often occur in response to the difficulties imposed by the confrontation between the needs of the baby and the increasingly complex tasks to be carried out. Sometimes these relapses fulfil a need to cover the emptiness which comes after delivery, for which the substance is the only substitute. Finally, these relapses can be explained by the maternal guilt felt due to the prematurity of the baby or its withdrawal syndrome.

If a mother is HIV positive, she will vacillate between two conflicting emotions: one which refuses the child and one which perceives the child as a defence against drugs and a hope for life. For these mothers, the fact that their child's life is in the balance can lead to an almost odalistic state (as if in a sanctuary) where their fate is in divine hands. The news that she is HIV positive can stun a drug-addicted pregnant woman or can lead her to believe in a challenge whereby the coming baby will be seen as saviour.

Early mother-child relationship

Drug-addicted mothers have no specific interaction with their babies; however, during a period of drug-taking, maternal involvement may alternate between moments of physical intimacy to the point of over-excitement and episodes of distance and unavailability. Such behaviour is proof of the discontinuity in parental function. It can be disorganized in the face of the imperious and repetitive nature of the needs of the baby, with the baby's cravings echoing the mother's addiction. At times these mothers have difficulty in quieting the baby and can even overfeed the child to appease its agitation. They quickly vacillate between attitudes of fusion with the baby and unavailability towards it. These episodes of intense commitment and detachment are evidence of the rapid transition between idealization and denial of the child. The detachment that these mothers are able to achieve is also a means of defence against the anxiety caused by the baby's dependence upon them.

One form of therapy in the withdrawal syndrome of the baby, provided it is not too severe, is contact with the mother. Thus the "kangaroo pouch" in which the baby is carried against its mother is as effective as any strong medication.

At times drug-addicted mothers go from one type of dependence to another in which they themselves can feel dependent upon the infant. This new form of addiction is expressed as an idealization of the child, and is a protection against drug addiction, and witness to the woman's new identity as a mother.

When a mother makes it a point of honour to conceal her addictive behaviour from her child, she effectively "manages" her addiction in such a way as to avoid overdosing, deeming herself to be responsible for her baby. Often, drug-addicted mothers seem to be permissive towards their children, and do not allow themselves to be strict, as they feel guilt with regard to what they consider their past mistakes, and the child can then become their confidant. They can then speak of their addiction as a sickness and justify the care they receive.

Fathers

In over half of the cases in which both parents take drugs, the father does not legally acknowledge his child, and in the majority of situations, the mother is alone upon leaving the hospital. The parental couple is rarely united during drug-taking episodes and imprisonment is frequent. The child thus experiences unexplained ruptures in the family and the parental figures are inconsistent, especially as concerns the father. In contrast, most mothers who undergo substitution therapy retain contact with the father. As a rule the fathers who are at home enjoy a good relationship with their children and some also start substitution treatment when the child comes into the family.

Grandparents

Maternal grandmothers play a meaningful role and many even live with their daughters. It is important that drug-addicted mothers affirm their own individuality even though they may leave the care of their child up to their own mother, and it is wise to preserve intergenerational relationships in order to avoid the feeling of abandonment these mothers might experience when they use institutions as parental substitutes over a long period of time. Studies have shown that children of drug-addicted mothers were more often raised by grandparents, and that their mothers idealized their own mother, to the point that their debt to her could only be repaid by giving their child up to her. These mothers often describe their own childhoods as being empty, devoid of limits imposed by parental authority, and having a need to be recognized, with risky and deviant behaviour in the more or less conscious intention of obtaining attention from their parents. Thus, the coming together of drug-addicted parents and their children facilitates an intergenerational approach. Furthermore, the now larger family, without appropriating the child, offers it a richer scope of figures to identify with, and an opportunity to become extricated from the sometimes fusional relationship it may have with its mother.

Development of the child

More recent studies indicate that the main risks threatening babies of drug-addicted mothers are prematurity and fetal hypertrophy. We should keep in mind that the specific action of heroin on the foetus can be combined with variables such as the consumption of alcohol, tobacco and other psychotropics, which enhance its effect. Nearly half of all babies born to methadone-treated mothers need a withdrawal period in neonatology. This proportion is similar to that of children of heroin-addicted mothers, but neonatal complications tend to be rare when the babies are treated in specialized units. At birth, the most common symptoms are hyper-excitability and hypertonia. In spite of their irritability and other fluctuations in their behaviour, these babies are usually quieted by human contact.

The children of dependent individuals are often described by their parents as being like adults, having precociously autonomous behaviour. Indeed these children are aware of their parents' problems and prefer not to be reminded of them. Thus, they tend to keep watch over their parents as they would over a sick person, monitoring their comings and goings. This is even more the case when they have been witness to overdoses and similar episodes in the lives of their parents. One recurring theme brought up by mothers in substitution therapy is the fear of being reminded about their addiction in the presence of the child – they seek to repair the damage caused by their addiction and make a complete break with their past, as if the child can magically erase the period preceding its birth.

There are no really typical problems with regard to children of drug-addicted parents; the most that can be said is that they show frequent hyperactive behaviour or an anxiety-depressive symptomatology which may be related to inappropriate parental upbringing, as it varies from negligence to tolerance to coercion. The children with antisocial tendencies are those who have most often been placed repeatedly in foster homes.

The children of parents who engage in a period of active drug taking are exposed more to the risks of negligence than to physical mistreatment. But the psychological and developmental future of the child rests with the ability of the family environment to insure the child proper affective and educative stability.

Siblings

It is not uncommon that when birth and substitution therapy occur simultaneously, the mother may develop a more complex and disconcerting relationship with her older child, considering him or her as an alter-ego. Often parents act with their older children as if the fact that they once were drug-addicted could deprive them of their status of authority, their parental "error" making parents of these older children. When a new child is born, the older children can feel deprived of the protective role that they had with their

parents up to then, especially when the parents are under treatment, and this increases the jealousy they feel towards the newborn.

Child welfare

Drug-addicted parents receive more attention than others from social services and an investigation can begin immediately upon the birth of the newborn child, starting with the obstetrical and neonatal units of the hospital, especially if the baby presents signs of withdrawal syndrome. Nowadays, with substitution therapy, the future of the relationship between the child and its parents will be essentially determined by the precariousness of their social and psychological circumstances.

Faced with an insoluble problem where the baby is the persecutor for the mother and there is a conflict between the interests of the mother and those of the child, a decision by a family court judge may relieve distraught parents who feel an obligation to normalcy (being good parents). If the parents can be a party to the placement of their child, relations can eventually become more stable.

Treatment of drug-addicted parents

The arrival of a child is, in most cases, associated with medical care. The treatment of drug-addicted parents should be planned on an individual basis and should comprise aspects relative to their disengagement from society, drug-addiction, and parenting. It is more efficient to favour an attitude of support and encouragement as early as possible in the pregnancy, rather than an attitude of disapproval and repression having withdrawal from drugs as the sole objective, for such an attitude can aggravate isolation and the desire to flee from the health system. For this reason it is imperative to have co-ordination among obstetric, paediatric and drug-specialized teams, and parents can thus be offered a period of evaluation and support which will continue far beyond the perinatal period, and will be the beginning of a therapeutic pattern. Access to medical care and substitution treatment, the partnership between the various health care departments, as well as monitoring of the parent-child relationship, are essential for drug-addicted parents who have a desire to become free from substance dependence and to bond with their children.

There are a number of specialized centres which receive drug-addicted parents and evaluate their requests and needs, giving aid in outpatient or inpatient withdrawal and socio-educational, psychological and medical support (detection of viral infections) for the entire family. If need be, substitution treatment is suggested. These parents can also benefit from meetings where they can share their questions on parenting with child health care professionals. The emphasis is on affective participation of the parents

during the events following the birth of their child and adjustment of family relations.

Methadone treatment

Pregnancy is the most favourable time for a woman to consider substitution therapy. Prenatal care, which is prioritized during a substitution programme, reduces the risks and gravity of neonatal complications. The benefits of substitution for the baby are weight gain and reduction in the frequency of fetal distress. It is noteworthy that if there are no constraints for women regarding alcohol or HIV, breast-feeding can be encouraged. Treatment brings with it social and medical recognition to those parents who have the status of patients under treatment. Thus they no longer consider themselves as delinquents and can take their rightful place with their child and provide appropriate answers to any questions that may be asked. The critical eye they cast on other drug-addicted parents gives proof to this desire to gain honourable status. Thanks to medical treatment, mothers are more attentive to changes in their figures and can appreciate their femininity. This leads to greater complicity between mother and child through body contact. During delivery, mothers on methadone feel supported by social services which care essentially for the welfare of the newborn. They are in fact already involved in a psycho-medical and social structure which accompanies them in their path towards responsible parenting.

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Chapter 3 An overview of service delivery for the pregnant drug user and dependent neonate

C Kouimtsidis and A Baldacchino

Introduction

Pregnant drug users are usually reluctant to attend antenatal or drug specialist services. Late booking with the maternity services remained prevalent in a case group at the Liverpool Drug Dependency Unit with around half presenting at beyond 16 weeks gestation (Siney *et al* 1995). In another report cocaine users had fewer prenatal visits compared with methadone users (Brown *et al* 1998).

Although this reluctance to attend services reflects the degree of a chaotic lifestyle there are other factors closely related to health care and legal service provision, and with health care staff attitudes towards this special vulnerable group, which exaggerate the problem. In USA the system does not seem to always work equitably. African-American and Latino women are more frequently tested for substance use or have children removed more often (Marwick 1998; Howell *et al* 1999). On the one hand, women may be motivated to enter and succeed at treatment in order to get custody of children who have been placed in foster care because of their drug use, but on the other hand, testing for drug use and child welfare involvement can be a deterrent to prenatal care and other services (Burns *et al* 1996; Marwick 1998).

The involvement of child welfare services and the fear of pregnant women that their children might be taken away from them have been consistently shown to be the most important reasons for pregnant users refraining from asking for help. There is an inaccurate and ill-founded view that substance-misusing parents are lacking parenting skills. It is also suggested that children will themselves lack skills because of a lack of appropriate role models. In the UK, though, the Department of Health recommends that drug misuse and adequate parenting are not mutually exclusive (Siney 1998). Substance misusers share some characteristics with other people of socially deprived background. The automatic involvement of child protection services has been discouraged and an appropriate evaluation of each case separately has been suggested.

In the USA there has been a tendency of criminalisation of mothers using substances. Prosecutions have focused particularly on cocaine, reflecting a reliance on inconsistent findings and reports and ignore the potential impact of other drugs such as nicotine and alcohol. There were reports where a mother's or a newborn's positive drug test had led to charges of assault with a deadly weapon (cocaine), contributing to the delinquency of a minor, and possession of a controlled substance. In cases in which infants tested positive and died soon after birth, women have been charged with homicide or feticide. Although society should clearly intervene to protect a child from

someone who cannot parent, it has also the duty to offer help to this extremely vulnerable population (Paltrow 2000).

The Pregnancy and Drug Use Study, which started in 1991 in San Francisco, suggested that pregnant drug users often practice harm reduction in some form or another. A number of suggestions for intervention were made: (i) women should have better information so that their harm reduction efforts are more effective; (ii) those who intervene should stop judging these women and instead facilitate their efforts; (iii) women should have access to health care without risk of losing their children to Child Protection Services; and (iv) professionals in research and treatment environments must learn to settle for less because insisting in total abstinence may exacerbate the problem (Rosenbaum and Irwin 2000). Other problems such as long distance and lack of transportation and childcare responsibilities have been identified as factors reducing engagement with specialist services.

Characteristics of services

Programmes for pregnant, substance-abusing women must be family-centred, comprehensive, and staffed by an interdisciplinary team of professionals who provide services in a non-judgemental, non-punitive, nurturing and culturally and linguistically appropriate manner. Programmes must address mental health problems and provide appropriate assistance and support, recognising that the more confrontational techniques often used in treatment for men may not work as well with many women (Howell *et al* 1999). Maternity care should also be non-judgemental, but in-service training around the actual risks of drug use and its effects on the family, and also about the risk of infection in the working environment is helpful in countering prejudice and preconceived ideas (Siney 1998).

In 1990 the Centre for Substance Abuse Prevention began to award demonstration grants within a special initiative for Pregnant and Postpartum Women and their Infants (PPWI) to projects across USA. The findings of the evaluation of the outcome of these projects suggested that the grantees' work was having incremental or indirect effects that often were components of the desired outcomes, and that these effects were often less quantifiable, more difficult to measure, or simply were not the focus of their evaluation.

The most outstanding feature of these programmes was the recognition that women required other services, such as child-care, housing, and legal assistance. Outreach philosophy, education activities, support groups to help women stay in prenatal care, parenting-skills classes were also very important characteristics. Integrated drug-free treatment intervention with maternity, family planning and social services with on-site midwives and paediatricians stimulated parent interest in well-baby care (Lieberman 1998). Women need to be involved with the planning of the services and treatment required. Honesty and education of the mother for the risks involved are very important components of a successful approach. The Glasgow Women's Reproductive Health Service (GWRHS) reports that although child welfare services are

involved early in treatment more than 98% of babies go home with their mothers. Any conference required should take place well in advance of the estimated day of delivery (Hepburn 1996).

One qualitative study documented the training process that helped midwives feel more comfortable asking questions about substance abuse and emphasized the necessity to improve referral linkages to increased screening effectiveness since providers do not want to identify substance abusers unless they can readily provide help for them (Howell *et al* 1999).

In the Liverpool Drug Dependency Unit the care of the pregnant patient is shared between the consultant of the drug service and either the GP or the midwife drugs specialist, as appropriate. The partners of pregnant women were treated as a priority if they were opiate users (Siney *et al* 1995; Siney 1998).

A survey based on 42 responses from 16 European countries suggests that: (i) there is a wide variation in experiences and types of treatment within a country; (ii) specialist units are usually integrated within the general gynaecological and paediatric departments; (iii) there is no distinction between users of drugs, alcohol and other psychotropic substances; (iv) poor follow-up on children born from drug misusing mothers; (v) wide diversity in facilities for young drug using parents, parents to be and their children; and (vi) wide diversity in the types of treatment to which they have access and which they used (Pascale 1998).

Outcomes

The most successful treatments and best outcomes were found in centres that offered high levels of psychosocial support. Overall women who complete treatment have a greater likelihood of reducing their substance use. Longer participation may result in more positive birth outcome (Burns *et al* 1995; Greene 1998). Treatment entry during the first trimester improves overall outcome parameters than entry in the second or third trimester (DePetrillo and Rice 1995).

Participating women at the Arkansas Center for Addictions Research, Education, and Services programme in the USA had a lower incidence of premature labour and maternal infections and infants had higher gestational ages and birth weight (Whiteside *et al* 1999). In another programme at the Maudsley Hospital in London there was a significant reduction in maternal methadone dose by delivery. Premature delivery was a common problem with 26% of babies born before 37 weeks gestation. Babies were of low birth weight with 30% failing below the 10th percentile. The significance of continued cigarette smoking should also be considered as an aetiological factor for all the above outcomes (Dawe *et al* 1992). Data from the PPWI in USA showed that about 40% of the participating women had negative drug tests at delivery and that most women received intermediate (43.5%) or adequate (35.8%) levels of pregnant care (Howell *et al* 1999).

Studies on withdrawing pregnant women from opioids suggest that recidivism is high, but infants of women successfully withdrawn did not experience neonatal withdrawal symptoms and gained the benefits described for methadone maintenance as well (Jarvis and Schnoll 1994).

Screening

Self-report questionnaires and structured interview schedules are offering comprehensive information on the type, amount, frequency and duration of drug use. Laboratory testing is a crucial objective tool to confirm this information. Urine drug screening from the mother remains the most widely used test with its associated disadvantages (devaluation with external agents, passive exposure, time-limited collection and detection period). Urine collection in infants is difficult and invasive. The incidence of false-negative test results in the infants' urine is high (Ostrea 1999).

Hair testing of the mother has the disadvantage of environmental exposure with washing and other preparation required prior to the drug screening. Depending on the length of hair, the test can detect drug use in the past but it can not detect very recent use (if there has been insufficient time for the drug to be absorbed by the hair). Hair collection from the infant can be invasive (Kwong and Shearer 1998; Ostrea 1999). The antenatal collection of amniotic fluid is highly invasive too.

Meconium analysis seems to have several advantages because of its high sensitivity, non-invasive technique and ability to detect the drugs to which the foetus has been exposed during the last two trimesters of pregnancy (Ostrea 1999).

Treatment of substance misuse

Methadone prescribing has been proven to be the cornerstone in the treatment of opioid dependence in general and in pregnancy in particular. The rational for prescribing methadone in pregnancy includes the following: (i) methadone reduces the risk of infection from injecting; (ii) improves lifestyle and nutritional intake; and (iii) allows for the stability of the foetus in utero. The aim of prescribing and the overall treatment intervention is controversial. Total abstinence or maintenance and, if so, dose of methadone at delivery are the most important points of controversy.

Abnormal foetal movements are related to falling methadone levels and might be correlated with foetal opiate withdrawal at the end of the dosing period (DePetrillo and Rice 1995). Withdrawal of methadone during the first trimester will result in spontaneous abortion and withdrawal of methadone during the third trimester may result in premature delivery. Increasing and splitting the dose of methadone into a twice-daily schedule might be necessary to prevent

withdrawal symptoms late in pregnancy when there is accelerated methadone metabolism (Jarvis and Schnoll 1994). Higher doses of methadone at delivery are related to more severe symptoms of Newborn Withdrawal Syndrome.

Stabilisation in the first trimester, gradual reduction in the second trimester and maintenance prescribing in the third trimester is the general recommendation (Dawe *et al* 1992; Siney *et al* 1995). Reduction must be done with extreme caution and with close obstetric supervision to prevent foetal instability and withdrawal with possible foetal death. Such a reduction produces significant clinical benefits for the drug-exposed infant (Doberczak *et al* 1993).

Polydrug use is well documented with pregnant drug users. In one programme all women were encouraged to work through a hierarchy of drug treatment, namely cessation of illicit drugs, replacement with an equivalent dose of methadone if appropriate, and slow methadone reduction to complete abstinence or low dose maintenance (Dawe *et al* 1992). Psychological interventions might be more crucial for non-opioids. Research on the effect of adjunctive counselling on 120 pregnancies suggests that 61% of the women succeeded either quitting totally or reducing drug abuse (Kukko and Halmeskaki 1999). Adjunctive behavioural approaches like the Community Management Interventions (CMI) with cocaine users who were able to achieve abstinence during their pregnancy improve maintenance of abstinence and increase the rate of compliance with prenatal care with concomitant improvement in perinatal outcomes (Elk *et al* 1998).

Overall, although abstinence from drug use during pregnancy may seem like the ideal goal, it is evident that many pregnant addicted women cannot remain drug-free after withdrawal. This cycling along with the effects of multiple drug use, appears to have severe consequences for foetal development. The risk of infection with HIV, hepatitis, and other sexually transmitted diseases also increases. All the above factors should be taken into account when drawing up a comprehensive treatment plan tailored to the patient's needs.

Obstetric care

The importance of close links between obstetric, drug specialist services and other services involved, as well as the non-judgemental philosophy of treatment has already been discussed. Continuing antenatal care should be undertaken monthly or as regularly as possible in a venue acceptable to the women. Urine testing for the presence of illicit substances is more appropriate as part of a treatment programme planned by the drug team. A midwife is ideally suited as the liaison person for the maternity services, providing she is flexible about attending General Practitioner (GP) evening surgeries and drug agencies. However this flexibility should be designed to "fill the gaps" rather than replace mainstream care (Siney 1998).

Standard analgesia is indicated during labour, as a daily dose of methadone will not provide pain relief. Cautious use of intrapartum pethidine and close monitoring of infants in the first few hours of life are recommended (Keoy *et al* 1999). Drug users who go into opiate withdrawal during labour should be treated by a small dose of opiate. Foetal distress will dramatically improve, thus reducing the risk of asphyxia and meconium aspiration due to withdrawal. A paediatrician should be present if foetal distress or meconium liquor is present.

Confidentiality is paramount as partners and relatives may be unaware of a mother's drug use. Discretion will reduce alienation from other mothers admitted on the ward. Women should be given all the information they need to make an informed choice about breast-feeding and having made that decision they should be fully supported by all the professionals involved (Hepburn 1996). Nurses, by demonstrating care-giving behaviour, can help mothers recognise and respond to newborns' behavioural cues, thus enhancing mother-newborn interactions (French *et al* 1998). Any other activities that could improve bonding between mother and the infant especially for those that need to stay in neonatal intensive care for a prolonged time are crucial.

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Part II

Perspectives across Europe

Chapter 4 Maternal healthcare and drug abuse in Denmark

L Ipsen and B Sommer

Summary

Compared to the number of drug addicts in Ringkøbing County, it is considered that the area of antenatal care and delivery of babies to mothers with addiction behaviour is well controlled. None of the ten babies delivered in a two-year period had serious congenital problems. All mothers were successfully detoxified before the moment of delivery.

I betragtning af antallet af stofmisbrugere i Ringkøbing Amt, må man konkludere, at tilbuddet til gravide stofmisbrugere er vel modtaget og effektivt. Ingen af de 10 levendefødte børn i den pågældende toårs periode havde medfødte misdannelser og alle gravide blev afgiftet i god tid inden fødsel.

Introduction

The number of inhabitants in Ringkøbing County is 275,000, making up 5% of the total population of 5.4 million people. The annual number of newborn babies in the two-year period 1999-2000 was 7,200. The county has two major cities, Herning and Holstebro, with 55,000 and 40,000 inhabitants respectively. The majority of addictive problems are concentrated in these two cities. Small-scale industry, agriculture, fishing and tourism are the important occupational areas. Compared to other counties, Ringkøbing has the highest average life expectancy together with the lowest health costs. Health policy is based on a tax-paying public system. Counties are responsible for delivery of health services and the total cost for the year of 2000 was 7 billion ECUs. Less than 1% of hospital beds are private (Sundhedsstyrelsen 2001).

Health and social care system in Ringkøbing, Denmark

The health care system is entirely public with 5 hospitals, of which 4 have delivery services for expectant mothers. There are, however, only two hospitals with specialised obstetric facilities.

Services for drug addicts are the responsibility of the Department of Social Services. The treatment strategy is mainly based on out-patient services. A 12-bed detoxification unit covers the demand, at present. In the past, the county relied on treatment centres outside its own boundaries for drug-free

rehabilitation, but recently a centre for 10 clients has been opened. The relevant hospital department is used if there are drug-related health problems apart from those related to detoxification, e.g. septicaemia, hepatitis and HIV.

During the early nineties the area of addiction experienced new political attention and was allocated substantial funds for expansion of services in general. In 2001 a quality assurance programme was launched by the Government whereby the number of treatment centres was reduced dramatically as they could not meet the quality standards (Lindenskov *et al* 1999). Treatment of pregnant drug addicts has been centralised in one of the county hospitals and staff have been trained for this particular purpose.

In 1994 a council of professionals was established representing all relevant people with the purpose of co-ordinating and supervising the treatment programmes for pregnant drug addicts. The group includes county midwives and county public health nurses, paediatricians, obstetricians and district health officers. The council meets twice annually and relevant cases are discussed. Patient's informed consent is required for this group of clients as well as for all other patients and clients attending the public services when information is passing from one department to another.

Antenatal counselling is offered free of charge to all pregnant women. The counselling is provided partly by the general practitioner and partly by midwives. Almost all citizens of Denmark are allocated a general practitioner of their own choice and the GP is considered the cornerstone of primary health care in the country. The pregnant woman's first contact with antenatal counselling is her GP. As the family doctor, the GP is usually familiar with most relevant problems in the family, sometimes for several generations. In case of any obstetric problem the pregnant woman is referred to the obstetric unit for further evaluation. Information is shared through a common antenatal protocol which follows the obstetric case from referral to hospital and back. Very few deliveries take place outside the hospital, with only approximately one percent being home-deliveries.

Data on pregnant drug users in treatment services

During the past ten years there has been a steady increase in the number of new attendants to the units (Sundhedsstyrelsen 1998). It is believed that this increase relates to improved quality of care and a higher degree of individual detoxification treatment schedules offered to the clients.

The present treatment programme for addicts who get pregnant and plan to deliver was developed during the early nineties (Sundhedsstyrelsen 1997). In Ringkøbing County all treatment facilities for addicts, including alcoholics, are under social services department except for maternal health care which is part of the health department. As the usual cultural barriers between the two departments have been overcome, this arrangement appears to advantageous because resources for pregnant drug users became part of the general hospital budget and not that specified for addicts.

In 1999 and 2000 the total number of managed cases of pregnant drug users was 11. This figure does not include women who have alcohol as their sole addiction problem. This is not a high figure compared to the number of total deliveries which in the same period was more than 7,200. We believe that all relevant cases were picked up by the primary health care system and admitted to specific services for addicts and as such the figure above is realistic. Only one of the 11 clients was unknown to treatment facilities in the social sector. Out of the eleven pregnant women one case ended with a spontaneous abortion and 10 were delivered without any major complications for either mother or baby. No congenital abnormalities were seen.

No women were found to be HIV positive. This is not surprising as none of the resident drug addicts in Ringkøbing County has tested positive during in the past ten years. This extremely fortunate situation is believed to be the result of the very early establishment of free needle-exchange programmes starting in the early eighties.

None of the 11 cases tested positive for hepatitis B. The precise prevalence of hepatitis B positive patients in the drug taking community is not known, but is considered to be less than 20% at the moment. Three cases tested positive for Hepatitis C. This reflects the presumed situation among all intravenous drug addicts in our county which is close to 25%.

Treatment strategy

If the pregnant drug user is not on a substitution therapy at the time of referral, methadone substitution therapy is initiated as soon as possible and a treatment plan with the declared aim of total abstinence "weeks" before delivery is advocated (*Clinical Obstetrics and Gynaecology* 1993). To achieve this, admission for shorter or longer periods in the maternity unit is offered to the client along with nursing care and psychological support (Meberg and Slørdahl 1993). Admission is also seen as a measure to help the client stay away from the drug taking community and avoid situations where she might be drawn into prostitution. Altogether these 11 patients occupied between 1 and 1.5 hospital beds in the two-year period. Abstinence including methadone as substitution was accomplished in all 11 cases. When on methadone substitution therapy mothers are encouraged not to breastfeed their newborn.

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Chapter 5 Maternal health and drug abuse in Germany

N Scherbaum, J Blanke, J Wolstein and M Gastpar

Summary

In Germany, pregnancy of opiate addicts is an acknowledged indication for methadone maintenance treatment (MMT). In Essen, about 700 out of an estimated 3,500 opiate addicts are in MMT, a quarter of them are women. In the two methadone clinics of the psychiatric department of Essen University (together about 200 patients per year) 25 pregnancies in 18 women were observed in the years 1999 and 2000. The rate of abortion was very high with ten out of 25 pregnancies terminated. In 2000 a contract was established between the agencies of the local system of care for opiate addicts and of the institutions for child welfare. Under this contract the aims and procedures of help for addicted women during pregnancy or caring for children are regulated. The implementation of this contract is currently undergoing evaluation.

In Deutschland ist die Schwangerschaft Opiatabhängiger eine anerkannte Indikation zur Methadonsubstitution. In Essen sind etwa 700 von geschätzten 3500 Opiatabhängigen in Substitutionsbehandlung, etwa ein Viertel der Behandelten sind Frauen. In den Jahren 1999 und 2000 gab es in den beiden Methadonambulanzen der Essener psychiatrischen Universitätsklinik 25 Schwangerschaften bei insgesamt über 200 im Jahr behandelten Patienten. In zehn Schwangerschaften kam es zum Abort. Im Jahr 2000 wurde unter Beteiligung des Jugendamtes ein Vertrag im lokalen Hilfesystem für Drogenabhängige geschlossen, der die Ziele und das Vorgehen der beteiligten Institutionen bei der Betreuung opiatabhängiger Frauen in der Schwangerschaft und bei der Kindererziehung regelt. Die Auswirkung dieses Vertrages wird evaluiert.

Introduction

In 1988 methadone substitution treatment was established in Essen, a town with 600,000 inhabitants in western Germany. Starting with one methadone out-patient unit treating about 25 patients, in the context of a large scale multi-centre evaluation study, there are now four methadone maintenance clinics treating a combined total of 280 opioid addicts at any one time (as well as several general practitioners treating about 400 addicts). Twenty percent of the estimated 3,500 opioid addicts in Essen are now in substitution treatment. About a quarter of these are women.

A short time after starting methadone maintenance in Essen, the problem of appropriate care for pregnant opioid addicts was recognised. Two types of pregnant opioid addicts were identified.

(1) *Addicted women already in methadone maintenance treatment:* These women often experience a normalisation of their social and somatic situation. Intimate partnership becomes a relevant topic of life and the menstrual cycle reoccurs. This is, in part, because women do not know that they can get pregnant after several years of living as a heroin addict with amenorrhoea or with an irregular cycle.

(2) *Heroin addicted women with no current treatment:* It is common medical practice in Germany to offer these women methadone maintenance treatment at least during pregnancy and the first months after delivery. According to the regulations regarding methadone maintenance (so-called "BUB-Richtlinien") and in the opinion of experts, pregnancy is an acknowledged indication for a course of methadone maintenance in Germany (Bühringer *et al* 1995; Kassenärztliche Bundesvereinigung 1999). Applications for maintenance treatment during pregnancy are quickly accepted by the regulatory board. Based on this indication methadone maintenance is limited to the duration of pregnancy and up to the first six months after delivery. However, maintenance treatment is usually continued because of other indications, e.g., hepatitis C.

Health and social care systems for pregnant drug users

Enquiries of the local institutions in charge of the welfare and health of children, e.g. hospital departments of paediatrics and of gynaecology, respectively, as well as the youth welfare department of the City of Essen, revealed that there was empirical evidence that only a small proportion of children of addicted women are known by the care system. This situation was put down to a lack of co-operation between the different agencies of the helping system and a deep distrust by the addicted mothers/parents of the different authorities because of fears that the public agencies would remove the children from their addicted mothers.

In order to facilitate a lasting common life of mothers, fathers and children as well as a constructive co-operation between the addicted mothers and the different agencies of social and health care, a contract regulating the aims and procedures of help for addicted women who are pregnant or care for children was established in 2000. The partners in this contract are two hospitals each with a department of paediatrics and neonatology as well as a department of gynaecology, the department of psychiatry and psychotherapy of the university hospital (in charge of methadone maintenance treatment), the youth welfare department of the City of Essen and several agencies specialised in the counselling of drug addicts, of women in problematic situations, and of drug addicted women. Under this contract the partners established a co-operation board.

In the contract, criteria for a basic level of care for children are defined, which have to be aimed at by the interventions of the different agencies. These criteria include sufficient housing space with heating, electricity and water supply, hygienic and safe living conditions, a guaranteed level of financial

support, regular medical care for the children (vaccinations, regular medical checks regarding health and childhood development), a person continuously available as the carer for the child and responsible for education and guardianship, a structured day for the child with a normal day-night-rhythm, regular meals etc. Mothers/parents are informed about these criteria during pregnancy and at the latest around the child's birth. This information about the criteria for child care should promote an attitude amongst the mothers/parents that the expectations of the public agencies are clearly defined and can be met. This strategy should lower the anxiety levels of mothers/parents in dealing with public agencies and thereby enhance co-operation of addicts with these agencies.

The partners in the contract are in agreement that opioid addicted mothers and fathers, respectively, have to co-operate continuously at least with one of the institutions of the network. One institution is put in charge of the case. This is usually the youth welfare department of the City of Essen. Twice a year this institution invites all participating institutions and the mothers/parents for a meeting ("Helferkonferenz" or meeting of all helpers) in order to review the recent development of child care, to assess current needs and problems, and to define goals for the future and the respective tasks of care givers and institutions. Through this conference the current situation is clear for all participants. The results of the conference are written up. Until now, all mothers have given their consent that the participating institutions exchange information with relevance for the well-being of the child. If mothers/parents break off contact with the helping system, the institution last in contact has to decide whether there is any danger for the further development of the child. In this case the department for youth welfare of the City of Essen has to be informed. Parents know that this department will be informed in every case of imminent risks for the child. If the parents are not prepared to co-operate with the helping network in such a situation, the child will be at least temporarily put into public care, e.g. foster parents. In this situation it might even be necessary for a court to decide whether the child can no longer be raised by the addicted mother/parents and therefore be put permanently into public care.

Experiences

The contract outlined above was signed in August 2000. Systematic data regarding the course of pregnancy in addicted women in Essen for the time before the contract are not available. The period following the signing of the contract has been too short to allow a serious evaluation of the network. In the two methadone maintenance out-patient departments of the psychiatric university hospital with a total of more than 200 drug addicts in treatment per year 25 pregnancies were observed in 18 women (see Table 5.1). All 15 children born in this period are still living with their mothers.

Table 5.1. Methadone maintenance in two maintenance clinics of Essen University

Year	1999	2000
Number of patients	211	202
Women	64	59
Number of pregnancies	10	15
Birth rate	7/10	8/15
Birth complications (still birth, Caesarean section, etc.)*	-	2
Congenital** abnormalities	2	-

* not counted: Neonatal withdrawal syndrome

**no systematic data available

During pregnancy there is no special regime for methadone dosages. Sometimes the dosages have to be increased compared with previous maintenance treatment in order to sufficiently suppress withdrawal symptoms, heroin craving and heroin use (Miller 1997). Addicts are advised against opiate detoxification during pregnancy. In cases of continuous use of heroin and especially of other drugs (cocaine, benzodiazepines, etc.) as well as hazardous behaviour, e.g. uncontrolled aggressive impulses, suicidal ideation, prostitution, patients are advised to spend the time of pregnancy on a ward of the psychiatric university hospital. Sometimes patients have to be forced by law to comply with the in-patient treatment. After delivery breast-feeding is generally not recommended. According to the literature, methadone levels in the milk of mothers in substitution treatment are pharmacologically not relevant. However, contra-indications to breast-feeding are infections, e.g. HIV or hepatitis C infection, or the use of other drugs like cocaine or benzodiazepines. Because of a prevalence of about 70% of hepatitis C infection in our patients, breast-feeding is in most cases contra-indicated.

Only a preliminary assessment can be made regarding the co-operation between the mothers/parents and the support network. The support network was successfully established. The meetings of the participating agencies and the mother/parents took place regularly. There was the impression that the addicts still perceived public agencies as controlling and as a danger for the living of a child with its mother. However, there was no protest against co-operation on the side of the addicts. An especially good co-operation could be established with addicts treated in methadone maintenance some time before pregnancy. In these cases confidence of the patients in the maintenance department and familiarity with treatment regulations already existed. By contrast, there was some difficulty with patients beginning methadone maintenance during pregnancy. Here the often, stormy period of the first six months in maintenance treatment took place during pregnancy. There are, as yet, no systematic data about the course of treatment and patient population profiles that are utilising this new arrangement.

Conclusion

The care of pregnant opioid addicts is a challenge for medical and social institutions. Success in this difficult area seems only to be possible by structured co-operation in a local network (Wolstein *et al* 1998; Wolstein 1999). It is questionable whether the addicts can accept the combination of help and control described here. Data will be gathered, in order to evaluate the implementation of such a network in Essen.

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Chapter 6 Maternal health and drug abuse in Italy

(A) Bergamo

L Tidone, M Campana, P Colleoni and M Riglietta

Summary

The authors describe the collaboration between the Department of Addictive Behaviour and the Regional Centres for family support and the General Hospital of Bergamo city. We describe the goals of the protocols, the flow-chart and the duties of each service involved in the collaborative network. We also report strategies of the pharmacological treatment in pregnant patients and the 1999 data collected in our Department. A brief report on the relationship with the Juvenile Court is included.

Gli autori descrivono la collaborazione tra il Dipartimento delle Dipendenze, I Consultori Familiari e gli Ospedali Riuniti di Bergamo. Vengono descritti gli obiettivi dei protocolli clinici formalizzati tra i servizi, i percorsi per i pazienti e i ruoli dei tre servizi coinvolti. Sono riportati le strategie dei trattamenti farmacologici per le pazienti gravide e alcuni dati rilevanti relativi all'anno 1999. A conclusione una breve descrizione dei rapporti con il Tribunale per i Minorenni.

Introduction

In the last few years the Department of Addictive Behaviour (DAB) in Bergamo has observed a changing trend in addictive patients: until a few years ago we treated drug/alcohol addicts who were other people's children, but now, they are in many cases parents too. This fact should make us focus on male and female drug addicts as mothers or fathers as far as health care, rehabilitation programs and maternal assistance is concerned.

Since 1977, when the Addiction Treatment Unit (ATU) was established by a specific law, the assistance of addicted pregnant women has been considered an important issue. The law anticipates collaboration between the ATU, hospitals and family support centres for patients with drug, alcohol and social problems (Ministerio della Sanità 1984; AA.VV 1987).

Goals:

- Clinical assistance to pregnant women
- Clinical assistance to newborns
- Precocious pregnancy diagnosis
- Detoxification therapy

- Follow-up of pregnancy, including:
 - Blood test to determine:
 - Complete blood count including platelet count
 - Coagulation tests
 - Blood group, Rh factor determination
 - Serum glucose, liver enzymes and renal function tests
 - Test for syphilis, toxoplasmosis, rubella, hepatitis B, surface antigen and antibody, HIV antibodies
 - Ultrasound test to date gestation and detect malformations
 - Cervical culture during the first control and at third trimester of pregnancy.
- Birth assistance
- Follow-up of related infectious diseases
- Follow-up and clinical assistance to newborns

Health and social care systems in Bergamo

(i) Joint collaboration between addiction service and family service (CFS)

Since 1996 there has been collaboration between the Department of Addictive Behaviour and territorial centres for family support (CFS). The role of the DAB and the CFS are clearly defined by a protocol and a flow-chart. The network involves 7 addiction centres in the Province of Bergamo and 2 centres for family support.

The work group involves the Directors of different services. Once a year they meet all the other workers involved in the protocol to define new objectives and perspectives for the next year, to update the flow-chart and to collect data for annual evaluation and audit.

The goals are: (a) to provide interactive services for patients given maternal and childhood support; (b) to promote contact with public services, from DAB to CFS and vice versa; and (c) to establish a network between different Public Health Services in the Province of Bergamo (950,000 inhabitants).

The targets are drug- and alcohol- dependent patients needing more specific assistance than our standard level. They include:

1. Women with drug or alcohol dependence (Finnegan and Kandall 1992) who decide to proceed with their pregnancy. In this case the social worker and the DAB medical doctor plans the flow chart which includes social support, obstetrical consulting and several gynaecological evaluations. Blood and urine examinations can be carried out at the DAB centre.

2. Women with drug or alcohol dependence who decide to have an abortion. The DAB physician contacts the CFS social worker who must adhere to the following steps:
 - Patient counselling (mandatory)
 - Programme visit with the obstetrician
 - Programme visit with the gynaecologist
 - Contact the hospital
 - Escort the patient to the hospital for abortion
 - Post-abortion counselling and support
 - Send the patient to the gynaecologist for a new visit and to plan a contraceptive programme
3. Women with drug or alcohol dependence who need a simple follow-up. The physician contacts the obstetrician to define the way and the steps of the follow-up.
4. Women with drug or alcohol dependence who request contraceptive consultation. The DAB physician, nurses or social workers will contact the obstetrician to plan the programme (i.e. blood tests, clinical assessment).

The facilities provided by the services are listed in Table 6.1.

Table 6.1. Facilities provided by addiction and family services, Bergamo

Facilities	Payment
Gynaecological visit	Yes
PAP-test (Papanicolaу cervical cytological test)	Yes
Contraceptive strategy counselling	Free
Training for delivery techniques	Free
Pregnancy follow-up (i.e. blood and urine examinations, CT-scan, rare illnesses risk evaluation)	Yes (partial)
Breast examination	Yes
Close mother and child assistance in case of dramatic clinical or social situation	Free
At-home follow-up and support	Free
Abortion for adults	Free
Abortion for young girls, in close contact with the Regional Judge	Free
After abortion control and contraceptive therapy	Free
Collaboration with DAB, CFS and Hospital Departments	

(ii) Collaboration between addiction services and the general hospital

In 1996 guidelines were jointly agreed by the Department of Addictive Behaviour and the General Hospital of Bergamo city. It involved the Gynaecology and Obstetric Unit, the Neonatal Pathology Unit and the Hospital Social Service. The aims are:

1. Patient known to the DAB with CFS support
 - directly contacts the hospital for delivery
2. Patient known to the DAB without CFS support: in this case DAB undertakes to plan the programme:
 - Send the patient to the hospital with a completed "network form" containing the formulation of the case
 - If required, the DAB social worker or physician goes to the Hospital Unit to present the case (with clinical examinations results)
 - The DAB social worker and doctor supports the Hospital Unit in assisting mother and child during recovery
 - The DAB team plans a personal "plan" for mother and newborn involving the other part of the Network to promote healthcare for both
 - The hospital promotes assistance and co-operation guaranteeing flexibility
 - The hospital completes clinical assessment if required
 - The hospital considers whether it is necessary to send the mother and baby to the paediatrician or GP
3. Patient unknown to the DAB
 - If required, the DAB physician goes to the Hospital for consulting
 - If required, the DAB social worker goes to the Hospital for social support
 - If the patient lives outside our catchment area, the DAB in Bergamo undertakes to inform and support the local DAB
4. Opiate withdrawal in newborn: management of the case
 - Neonatal Unit physician informs parents and the Hospital social service about withdrawal and its treatment
 - Hospital social service alerts territorial social service and/or judge

Data on pregnant drug users in treatment services

In the field of maternal healthcare, methadone treatment is considered one of the most important modalities of care for pregnant women (Finnegan 1991; Zanolesi and Maremanni 1998) in a multidisciplinary context. Usually the dosages of methadone depend on the woman's dependence status (Doberczak *et al* 1993). The correct dosage is considered to be the minimum

dosage which permits the patient to avoid or reduce heroin use. As is well known, high dosages of methadone are less dangerous for the foetus than heroin (Sgarbi and Facchinetti 1998). Moreover the uncertain availability of heroin can be quite dangerous for the foetus which is related to fluctuations of high and low levels of opiates in the blood. Methadone has a low toxicity for the foetus and an irrelevant risk of overdose or/and withdrawal for the mother. Oral use reduces the risk of infectious diseases (Finnegan *et al* 1993).

The aim of methadone treatment for pregnant drug users is to keep the mother away from illicit drug use. Due to higher metabolism dosage increases may be needed (in the last trimester). The goal of the methadone strategy is to stabilise the patient without producing any indication of opioid abstinence syndrome.

The international literature (e.g., Finnegan 1991; Finnegan and Kaltenbach 1992) suggests that the first approach should be methadone maintenance combined with psychosocial counselling. This is well documented as improving outcomes for both the woman and foetus. The second approach is slow medical withdrawal with methadone. The safety of this second approach has not been documented. Our Department uses the standard methadone maintenance approach without dosages limit defined by role but only following a clinical evaluation. The average daily dose is 51.5 mg. Breast-feeding is not recommended for patients who have undertaken methadone treatment. To date there are no well-documented scientific indications to encourage such a practice.

Summary data on cases in Bergamo are given in Table 6.2.

Table 6.2. Summary data for pregnant addicts in Bergamo, 1999 - 2000

Variable	1999	2000
Proportion of patients in treatment who are female	11.1%	16.5%
Birth-rate for patients in treatment	1.9%	1.7%
Number of pregnant drug users in treatment for the first time	0	0
Number of abortions	4 (1 miscarriage)	3
Number of newborns	6	7
Prevalence of HIV-Ab in pregnant drug users	0%	9%
Prevalence of HCV-Ab in pregnant drug users	100%	100%
Prevalence of HBV-Ag in pregnant drug users	0%	0%
Congenital abnormalities in newborns for pregnant drug users	0%	0%

Conclusion

Maternal health care clinical protocols are well defined and applied in the Department of Addictive Behaviour in Bergamo.

In Italy the law protects privacy and guarantees the right of anonymity. The Magistracy does not consider drug abuse or dependence a sufficient reason to start an automatic judicial proceeding. The Juvenile Court holds a hearing following a formal denunciation (relatives, public officers, neighbours, etc) and then evaluates parental ability leaving aside consideration of any physical or psychiatric disease.

The Department of Addictive Behaviour is involved in defining diagnosis and treatment and any information passed to the Juvenile Court needs a signed formal written consent (see Appendix A).

(b) Padova

L Di Furia, B Della Barba, F Schifano and N Savani

Summary

In this chapter, whilst emphasising the limitations and gaps in the existing literature, the authors briefly describe the consequences of the self-administration of different psychoactive substances, both for the newborn and for the mother. The treatment and the support package (which can include a residential rehabilitation programme) given to pregnant clients and to their partners, before and after delivery, is also commented on and a few epidemiological data pertaining to the local situation are given as well.

Gli autori descrivono brevemente i danni prodotti dalle sostanze psicoattive sul feto e sulle donne gravide, mettendo in luce anche le difficoltà che si incontrano nell'interpretare i dati che provengono dalla letteratura. In seguito viene analizzato il percorso clinico che i Servizi di Padova offrono e che vanno dalla presa in carico delle coppie che aspettano un figlio o delle donne gravide alla nascita del neonato. Tale percorso comprende anche la scelta del percorso terapeutico comunitario o ambulatoriale attraverso il quale si valuta la capacità genitoriale della coppia o della madre se questa è sola. Infine vengono forniti dati epidemiologici relativi alla esperienza locale.

Introduction

In the last 10 years we have observed a significant increase in the abuse of psychoactive drugs, so that it now constitutes one of the major health problems in our society. However, the use of drugs during pregnancy deserves a different consideration, given that the abuse of different compounds can cause several potential very serious consequences both in the mother and in the newborn. Conceivably, these consequences are strictly

related to the specific drug abused, the more general life style of the woman and finally to the level of dependence itself.

Most of our knowledge pertaining to the issue comes from animal experimentation. However, due to several factors (pharmacokinetics, pharmacodynamics and most of all the specific characteristics of exposure to the drugs which can be observed in the human species which differentiates between animals and humans), the conclusions that can be drawn from non-clinical studies are not straightforward (Nau 1986; Hutchings and Gamagaris 1989; Spear *et al*, 1989; Schifano and Di Furia 1999;).

On the other hand, even those studies which are carried out on humans are fraught with several methodological difficulties. In fact, a few factors related to the condition of drug addiction itself (i.e. diet, general lifestyle) can act as statistically confounding variables. Again, due to possible legal issues most of those pregnant women recruited for retrospective studies can be reluctant to describe their previous toxicological history (type of drugs, quantity, frequency of administration etc.) (Schifano and Di Furia 1999).

Consequences of substance use

Although all of the above named problems can cast some doubts on our knowledge, a few facts about the consequences of the different substances taken during pregnancy have found consensus between researchers, and will be briefly reviewed here.

Opiates

Due to the effects of the altered menstrual cycle, which can be found in 60–90% of female opiate users, the diagnosis of pregnancy itself is usually delayed (Mason 2000). In the early phases of pregnancy opiate withdrawal can cause premature uterine contraction and consequently a spontaneous miscarriage. In later stages, withdrawal can cause premature delivery or an *abruptio placentae* (Mason 2000).

Both acute and chronic general suffering can be observed in the foetus. Again, the presence of meconium in the amniotic liquid can lead to the intrauterine death of the foetus because of the ingestion of meconium itself (Ciraru-Vigneron *et al* 1989). Children born to women on MMT who have used heroin during pregnancy have birthweights which are lower than expected. However, both children born to women on MMT who have not used heroin and to those who have used the drug show neonatal withdrawal syndrome. This syndrome is a generalised disorder characterised by Central Nervous System (CNS) irritability, gastrointestinal dysfunction, respiratory distress, different autonomic symptoms and behavioural troubles. Again, in opiate-dependent clients a few medical and gynaecological complications can be found: anaemia (due to malnutrition); hepatitis A, B & C; HIV; sexually transmitted diseases (syphilis, abscesses, TBC, gonorrhoea, acuminate condilomata, herpes, and chlamydia) (Kaltenbach *et al* 1998). Usually, heroin-

dependent women do not give up their habits during pregnancy, and this increases their risk of contracting endocarditis, which can cause foetal death (Schifano and Di Furia 1999).

Alcohol

In the advanced stages of pregnancy the withdrawal syndrome can cause a premature delivery, while during delivery alcohol intoxication can cause nausea, vomiting, lowering of blood pressure and lethargy (both in the woman and in the newborn). Foetal alcohol syndromes (FAS), according to Smith *et al* (1976) is the third largest cause of mental retardation in children. FAS has been found in more than 30% of children from alcohol-dependent women who were born with maxillo-facial or CNS alterations.

Cocaine

According to Mastrogiannis *et al* (1990), the use of this drug during pregnancy can cause spontaneous abortion, premature delivery, hypertension, premature rupture of the membranes (Delaney *et al* 1997), uterine rupture (Mishra *et al* 1995), *abruptio placentae* and foetal suffering so that caesarean sections can be rather frequent (Kain *et al* 1996). In the newborn, one can observe a lower than expected weight, growth defects (Kliegman *et al* 1994), skeletal malformation (Bueher *et al* 1996) genital urinary tracts (Ho *et al* 1994), cardiovascular (Hoyme *et al* 1990) and neurological malformation. These consequences can be ascribed both to the actions of cocaine on maternal/foetal circulation and to the toxic effects of the drug itself on the brain (Ferraro *et al* 1997).

The newborn can show irritability, convulsions, tremors, generalised hypotonia, hypothermia, sleep disorders, and behavioural modifications. The symptoms disappear after a few days and do not usually require specific treatment. Very frequently, the cocaine withdrawal syndrome in the newborn is misjudged, or even not recognised by the paediatrician.

THC (cannabis)

Cannabis use is quite widespread both in Europe and in USA, but studies on the obstetrical complications of chronic marijuana use are controversial. It is thought that its use lessens the incidence of the nausea observable in the first months of pregnancy. Again, it can cause anomalies of the delivery itself. The newborn's weight is usually lower than what it is expected. It is likely that THC acts in the brain of both the mother and the newborn (Schifano and Di Furia 1999).

Amphetamines and amphetamine-type drugs

The consequences of the use of these drugs are similar to those observed in cocaine abuse. The most frequent effects are: defective foetal growth, diminished skull volume, low neonatal weight, cerebral haemorrhage and congenital malformation. The withdrawal syndrome is characterised by extreme irritability, tremors, shaking, sleep disorder and muscular hypertonia (Oro and Dixon 1990).

The Padova experience

In our opinion, the collaboration of different professionals (toxicologists, gynaecologists, paediatricians, anaesthetists, psychiatrists, psychologists, social workers and educators) is considered essential to adequately follow up the pregnancy, the delivery and the newborn. Consequently, we have created in the area a collaborative network between the Addiction Treatment Unit (ATU) and the Department of Obstetrics and Gynaecology (OGD) of Padova University, so that a multimodal approach to the situation has been made possible.

Whenever a client of the ATU is pregnant, (both the blood and urine tests are available for free on our premises), according to the established protocol, counselling is offered to help the woman make the best possible decision concerning the eventual development of the pregnancy. On this occasion, all of the possible risks consequent to the use of illicit drugs during pregnancy are explained. If the client decides to carry on with her pregnancy, she will undergo a complete medical check-up in the ATU. Again, if the woman is opiate-dependent a trial with methadone (at a dosage adequate to reach and stabilise a drug-free condition) is offered. At the same time, the client will begin regular assessments and follow-up visits in the OGD. On the other hand, if she decides to have an abortion both the ATU and OGD will work together to offer the best possible psychological and pharmacological treatment.

The formal responsibility of child raising, according to Italian legislation, will be temporarily given to the social worker working for the Municipality, whilst the newborn will continue to actually live with his/her own mother. The situation will then be periodically reassessed and reappraised and, if it is considered a satisfactory one, the mother will continue to raise her own child by herself without any further formal involvement of the Social Services of the Municipality. If the mother comes from a very difficult environment, (i.e. extreme marginalisation, homelessness, prostitution) after the delivery she will be sent, together with the child, to an ad hoc rehabilitation unit. If the mother does not accept the proposal, the Court may decide to formally ask some significant others (grandparents; uncle and aunt; etc.) to raise the child. Whatever the situation is, the assessment and reappraisal of the mother/infant interaction will be carried out for 6 months. At the end of this period, the ATU, the Municipality Social Services and the Paediatric Department of the Hospital

will send a formal report to the Regional Court in which the appropriate advice will be given.

The ongoing assessment will take into consideration the following issues: (a) the mother/child interaction; (b) the mother's clinical and toxicological situation; (c) the information given by significant others; (d) the economic situation. In this respect, one should take into account that the situation is usually a difficult one, since in most cases the partners of the addict mothers are also drug addicts. On the other hand, the female partners of male addicts are not typically addicts, so it is quite usual that the mothers will take care of the children on their own and will separate from their partners.

Epidemiological issues

Most of the Padova ATU clients are males, usually in the 20-34 year age range. In the ATUs of the Veneto Region, heroin is the primary substance of abuse for 80% of the clients and the male/female ratio is 3-4:1. During 1999, 1,500 clients were seen at least once by the Padova ATU, so that the prevalence rate (the total population of the catchment area being the denominator) is 384 per 100,000 inhabitants per year and the incidence rate (defined as the number of new clients in the index general population) is 55 per 100,000 inhabitants per year. During 1999, the ATU professionals dealt with 13 separate situations where the issues of pregnancy and drug addiction were involved. Three of these women, out of the total number of 13, entered a residential rehabilitation unit after 3 months of gestation, while 2 opted for an abortion. It is interesting to note that 2 of the 13 women approached the ATU for the first time only after the beginning of their pregnancy. Only 2 out of those who were followed up as outpatients showed positive urine results for opiates, and in one of these 2 cases the newborn was not given to the natural mother. Of these 8 newborns, seven turned out to be HCV positive, one HIV positive but none were HBV positive. Only one result was negative for all three tests. Two newborns out of these 8 showed a weight which was lower than expected (and 1 was a child of a mother treated with methadone during pregnancy). The children of the two women who showed positive results for opiates in their urine specimen displayed a Neonatal Withdrawal Syndrome (NWS) to an extent which was more severe than that observed in other children. The NWS was assessed and measured, after the delivery period, every 2-4 hours (and the pharmacological treatment scheduled for the newborn was decided accordingly).

Before 1999, all of the children who showed evidence of NWS were administered with oral liquid phenobarbitone, but its use has been abandoned for different reasons: insufficient control of gastroenteric distress and possible fits; compromised suction status; presence of alcohol in the preparations; and the need to administer fairly high dosages of the drug to achieve satisfactory results. Consequently, since then the children affected with NWS are routinely treated with morphine chlorydrate (per os).

The pharmacological administration is part of a more complex treatment protocol which includes: physical constraint of the newborn, frequent feeding with small meals (with a hypercaloric formula), careful sleep observation, thermal stability, and frequent weight checks.

On the whole, the following signs have been observed in NWS children: weight lower than expected, progressive loss of weight after birth, sleep disturbances, tremors, hypertonia, mioclonus, presence of the neurological Moro reflex, increase of respiratory rate (and flaring of the nostrils during respiration itself), rising of body temperature, sweating, uncoordination of and troubles with suction, vomit, diarrhoea. The NWS symptomatology began 24/48 hours after the delivery and we observed some differences in the degree of the symptomatology itself according to the quality and quantity of the specific illicit drug use by the mother and to the time at which the illicit drug itself was administered. According to the American Academy of Paediatrics (AAP) NWS is observed in 3–50% of the newborn from drug addicted mothers (and this rate has shown a threefold increase in the period 1979–1987). Lastly, the AAP suggests that the women who are given a daily methadone dosage of less than 30 mg can feed their children with their own milk (which is of paramount importance in the building of the mother/child relationship).

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Chapter 7 Maternal health and drug abuse in Malta

A M Vella

Summary

This is a retrospective study of treatment outcome of twenty pregnant drug misusers in Malta. The study followed all cases of the babies delivered in 1999. Treatment given to the mother, her compliance to treatment and advice and the neonates treatment were followed and compared. No relationship was found between methadone dispensed to the mother and the amount needed by the newborn.

Dan huwa studju li sar minn Sedqa go l-isptar ta' Malta, fejn rajna l-effett tat-terapija mghotija lil ghoxrin mara tqila li kienu jabbuzzaw mid-droga. It-trabi kollha li twieldu fl-1999 jew studjati. Harisna lejn il-medicina li tajna lil omm, jekk din hadditx din il-medicina u segwitx il-pariri mghotija, u imbagħad rajna l-bzonnijiet tat-tarbija u l-medicina mghotija lilha. Ma sibna l-ebda relazjoni bejn il-kura li hadet l-omm u dik li kelha bzonn it-tarbija.

Introduction

In Malta there is only one methadone-dispensing unit run by sedqa, the National Agency Against Drug and Alcohol Abuse. This unit is based in the only government run hospital on the island: St. Luke's Hospital. This base has proved beneficial since all patients seen at the unit and in need of hospitalisation have always been followed closely with considerable ease. This can be exemplified in the case of pregnant females on methadone therapy where close care and follow up has been more possible because of the methadone-dispensing unit's base within the hospital precincts.

Health and social care system in Malta

We encourage pregnant drug users to undertake a methadone maintenance programme. If the client is already on methadone, she is encouraged to stay clean from illicit drugs by increasing her methadone dose if the need arises. If she is not on methadone an inpatient treatment programme is advised so that the patient is monitored and methadone is administered according to her current psycho-somatic state. As has been confirmed by other centres, (Pregnancy and Drug Misuse Conference – Pompidou Group May 2000) pregnant females on methadone maintenance have a better and safer outcome for their foetuses. The general well being of the mother is better as well.

Although detoxification from opioids prior to delivery would be the ideal goal, it is very difficult to achieve this and often not recommended. Detoxification is not performed prior to the 12th week of gestation or later than the 32nd week in pregnancy to avoid spontaneous abortion or preterm delivery (Harper *et al* 1977). If the clients complain of cravings or insomnia during detoxification, they are encouraged to keep their methadone dose stable and not decrease it. Insisting on detoxification on the part of health professionals may result in the pregnant client either abusing heroin or else other drugs especially benzodiazepines. This is not desirable. No relationship has been found between the dose of methadone taken by the mother during her pregnancy and the severity of neonatal abstinence syndrome. Therefore, it is preferred to have a good stable dose of methadone than a craving mother, or an erratic drug-using mother during her pregnancy.

Once the mother is stabilised on methadone contact is made with the antenatal clinic and an appointment is given. Clients are asked whether they are keeping their appointments and if not, nurses from our unit accompany them to the antenatal clinic to ensure attendance.

Our clients are usually treated well at the antenatal clinic and discrimination seems to have become past history. Our staff usually carries out blood investigations since they are more experienced in the technique on this population. We also carry out the pre- and post-test counselling before HIV and Hepatitis C testing.

Usually our staff members do not have to divulge any information to the antenatal clinic as the clients themselves do this during their visit. Only in cases where there is irregular attendance at the antenatal clinic or in cases where there is fear for the safety of the foetus, are social workers contacted. Their primary role would be to help the mother nurture her pregnancy adequately.

All pregnant users are encouraged to attend the parentcraft classes, which are held for all pregnant women. Here women are given antenatal advice, besides being acquainted with the labour and postnatal wards and get to know the staff working there. Respiratory exercises are taught together with relaxation techniques to be performed during delivery. All this is very important in preparation for the arrival of the neonate.

Pregnant drug users who are found to be under-nourished or in need of respite are offered in-patient treatment by our agency. Pregnant users usually prefer to stay with their families or partners but they are still offered respite if the need arises.

There are no waiting lists for pregnant users at our unit and each one is given priority and treated as urgent whenever they turn up at the unit. If the partner is also in need of help and in anyway involved with the mother's relapse, he is also given priority and prompt intervention and care offered.

Once the baby is born it is sent to the nursery with all other newborns. A Neonatal Abstinence Scoring System is immediately initiated and repeated every 3 to 6 hours (see Appendix C). If the baby scores more than 8 for 3 consecutive scoring intervals the baby is transferred to the Special Care Baby Unit where methadone is started. This is increased until the right dose is found (0.1 mg/Kg/6 hr increase by 0.05 mg/Kg until the score drops below 8). After 24 hours the total daily dose is given in 2 doses 12 hours apart. The dose is then tailed by 10% - 20% daily. If the score increases to more than 8, tailing stops for at least 24 hours. It is then restarted when the score is constantly less than 8.

After discharge from the nursery the babies are followed at the Well-Baby Clinic on a monthly basis and the mothers are encouraged to have their smear tests done six weeks after delivery as a follow-up procedure. At this stage different birth control methods are discussed with clients. This is done during a client-doctor session. At the Substance Misuse Unit a recording system is maintained (see Appendices B, C & D).

Patients' profile attending treatment services

During 1999 a total of 797 clients received treatment in the Substance Misuse Unit. Of these, 104 (13%) were female. Out of these twenty were pregnant during the particular year (19% of female clients). Our experience with female clients has shown that these usually come forward early in their pregnancy, in fact the diagnosis is usually made at the Unit itself. Only one out of these twenty clients was referred to us by the antenatal clinic. Many of the pregnant users fear that they may forfeit custody of their children due to their illicit drug use. However the Unit enjoys a very good relationship with these users and they are aware that compliance with treatment will allow them to retain custody of their children. We usually do not seek the services of social workers outside the agency unless neglect or non-compliance to treatment is evident.

Out of our 20 clients, one had twins that she miscarried at 6 weeks of gestation. One was pregnant twice during 1999 and in both cases she lost her baby in the first trimester. Both had been on methadone and were known to us before their pregnancy. In both cases the cause of miscarriage was not due to opiate dependence.

Another client delivered a stillborn child due to placental abruption. In this case the client had been very regular and punctual in her antenatal appointments, she had been to parentcraft classes as well. Our Unit had known her before her pregnancy. She started her pregnancy on 24 mg of methadone and finished her pregnancy on 13 mg. This dosage had been stable for the last trimester. She had never used heroin or cocaine during her pregnancy but she had occasionally smoked cannabis. She was Hepatitis B and C and HIV negative.

Another client who had been very irregular in her attendance to antenatal clinic and did not go to parental craft classes delivered a normal baby at term. The baby died at 9 months of age because of cot death. The mother was on 30 mg of methadone when she became pregnant, but due to earlier continual relapses, her dosage was increased to 35 mg as soon she was found to be pregnant. She then kept herself clean from illicit drugs and delivered her baby while on 15 mg of methadone. The baby had been put on methadone at the Special Care Baby Unit and weaned off after 6 weeks. The cot death, though, may not be related to methadone.

The other 16 babies did not present any congenital malformations or diseases. Out of these 16 cases, 12 mothers had been regular in their antenatal appointments and 6 even attended parentcraft classes. We had known all clients before their pregnancy. One case, though, had stopped coming to the Unit a year before getting pregnant and admitted to heroin use at the antenatal clinic a week before delivering her baby. In this case the mother refused methadone and the baby was kept at the Special Care Baby Unit for observation for a week. No methadone was given to the baby.

None of the mothers breast-fed their children. Those who were Hepatitis C positive (10 cases) were advised not to breast-feed, 3 had not gone through blood investigations and therefore were advised not to breast-feed either, 3 were Hepatitis C and B and HIV negative, yet they chose not to breast-feed even though they were encouraged to do so.

The following table (Table 7.1) shows the methadone dosages of all the pregnant users and whether their neonates were treated with methadone. As can be well seen no pattern can be demonstrated. What our Unit seeks is not detoxification but that the pregnant user stops all illicit drug intake and complies with our treatment without suffering from cravings.

Table 7.1. Medication of pregnant drug users and treatment of neonates, Malta, 1999

Client no.	Medication of pregnant mother	Methadone to neonates
1	No medication	No
2	No medication	No
3	10 mg methadone increased to 20 mg stable	Yes
4	15 mg methadone stable	No
5	17 mg methadone decreased to 0 mg over 6 months	No
6	19 mg methadone stable	No
7	20 mg methadone decreased to 8 mg stable	No
8	24 mg methadone decreased to 13 mg stable	No
9	25 mg methadone stable	No
10	35 mg methadone decreased to 15 mg stable	Yes
11	35 mg methadone stable	Yes
12	35 mg methadone increased to 45 mg stable	Yes
13	40 mg methadone decreased to 29 mg stable	Yes
14	50 mg methadone decreased to 10 mg stable	No
15	50 mg methadone stable	Yes
16	60 mg methadone stable	Yes
17	60 mg methadone stable	No
18	120 mg methadone stable	Yes
19	15 mg Dihydrocodeine decreased to 0 mg	No
20	180 mg Dihydrocodeine stable	No

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Chapter 8**Maternal health and drug abuse in Poland***Grażyna Świątkiewicz***Summary**

In Poland medical assistance during the period of pregnancy, delivery and early motherhood is provided for every pregnant woman. We have data on the proportion of females in specialised drug treatment, but no data on the number of newborns delivered of patients in such treatment. Also obstetric care statistics usually do not include information on drug misuse. Assessment of the real prevalence of pregnancy among the drug taking population is as yet impossible due to a lack of accurate indicators.

Management of pregnant drug users in treatment is based on informal human networks initialised by drug treatment professionals. Pregnant women who use drugs are often attracted by therapists into antenatal counselling as early as possible.

The health status of pregnant women is routinely investigated in full, including details of venereal diseases, but HIV tests are almost never proposed by medical doctors. Antiretroviral therapy for pregnant seropositive females has been available in Poland since 1992. From 1994 it has been based on Protocol 076. Implementation of Protocol 076 into medical practice almost eliminated cases of HIV transmission from mother to child.

W Polsce medyczna opieka w okresie ciąży, porodu i wczesnego macierzyństwa jest dostępna dla wszystkich kobiet. Dysponujemy, wprawdzie danymi na temat proporcji kobiet leczonych w specjalistycznym lecznictwie uzależnień lekowych nie wiadomo jednak ile z nich rodziło dzieci. Także statystyki z oddziałów położniczych nie zawierają informacji na temat używania narkotyków. Jak do tej pory brak jest wskaźników pozwalających na oszacowanie realnej liczby ciąży i porodów w populacji kobiet nadużywających narkotyków.

Opieka nad kobietą ciężarną objęta specjalistycznym leczeniem uzależnień jest oparta na nieformalnej współpracy terapeutów z lekarzami. Zazwyczaj, tak wcześnie jak to możliwe, ciężarne kobiety są zachęcane przez terapeutów do regularnych wizyt u ginekologa.

Mimo, że w Polsce status zdrowotny kobiety ciężarnej jest diagnozowany bardzo dokładnie, łącznie z testami na choroby weneryczne, prawie nigdy lekarze nie zalecają testów w kierunku HIV. W Polsce antywirusowe leczenie dla kobiet seropozitywnych jest dostępne od 1992 roku. Od 1994 bazuje ono na Protokole 076. Wprowadzenie Protokołu 076 do praktyki prawie wyeliminowało przypadki transmisji HIV od matki do dziecka.

Introduction

Poland is a country with a population of more than 38 million (GUS 2003a). In 2000 there were 380,476 newborns registered (GUS 2003b). In Poland pre- and post-natal care systems for pregnant women have a long tradition. Pregnant women were under systematic control of their health status, with counselling and medical support for infants easily available.

Since the end of the 1990s an insurance policy system has been implemented in Poland, when earlier the health sector offered treatment for free. Such a big reformation needed time and it is still too early to assess whether the current system of health service offers are changing towards better quality and availability.

At the beginning of the new system implementation, drug treatment services faced visible troubles associated with the character of their clients. Insurance companies refused to pay for long term treatment of drug addicts. There were problems with drug users who had no insurance policy. After many negotiations the situation is looking much better. It was decided that the State Budget should cover costs of treatment for those without insurance policy. Thus formally, every drug user could be covered by a drug treatment system but there are still financial and organisational obstacles associated with full implementation of this rule.

Officially, medical assistance during the period of pregnancy, delivery and early motherhood is provided for every pregnant woman. Usually childbearing takes place in the district hospital. There are no specialised obstetric services for drug dependent and for HIV positive women. Before delivery every woman undergoes a full assessment on her health and social status. According to Ministry of Health instructions every assessment should contain questions on the misuse of legal and illegal drugs. In practice this part of the interview is commonly missing. This is why data from obstetric care are not useful to assess the number of drug users among pregnant population. In the 1997 a workshop "Management of pregnant misusers" was organised by the Pompidou Group in Warsaw. At this event there was a consensus among professionals that development of an effective monitoring system and a model of comprehensive care for drug dependent pregnant women at the country level was needed (Świątkiewicz 1998). The reformation of both the health sector and the insurance policy system produced a lot of new problems. The issue of pregnant drug users was forgotten or lost its importance because of other challenges faced by the health sector.

Health and social care system for pregnant drug users

There is no official multidisciplinary agreement for comprehensive management of pregnant drug users among such services as the drug treatment agencies, primary health care, obstetric hospitals or social services. But there are human networks and contacts initiated by professionals working for drug centres. They are aware that pregnant drug users can present many medical and socio-psychological problems. Those pregnant women who are under drug treatment during pregnancy are often attracted by therapists into antenatal counselling as early as possible.

Data on pregnant drug users in treatment services

(A) Prevalence data on pregnant drug users

In 1999 6,100 patients in Poland were hospitalised due to drug-related problems in inpatient psychiatric wards. By 2000 this had risen to 8,590. Among all patients in 1999 women constituted 26% (1,586 females). This proportion fell to 22% (1,888 females) in 2000 (Sieroslawski *et al* 2002b). In 1999, almost 39% of female were opiate users, 19% were treated due to problems with tranquillisers, and 28% constituted polydrug users. Diagnoses associated with amphetamine use covered 7% of female population in the inpatient setting. Other substances like cocaine and hallucinogens were the drugs of choice for less than 1% of patients each (IPIN 2000).

Specialised outpatient drug treatment services recorded 8,557 clients in 1999. The percentage of female clients was 23% (1,988 females). Distribution of diagnoses was very similar to that presented in the inpatient treatment statistics. Opiate users represented 34%, amphetamine users 8% (IPIN 2000).

Drug users are also present in the general psychiatric outpatient treatment setting. In 1999 5,241 patients had drug-related problems. Medical statistics on this type of treatment give information on the total number of clients with drug related-problems (ICD 10 F11 - F19). More detailed diagnoses are not given in published statistics. One could guess that among clients in general psychiatric outpatient clinics those using psychoactive substances dominate. For this category of clients specialised treatment programmes do not exist. Data on out- and inpatient populations should not be summarised. A high proportion of clients use both kind of treatments during the year (Sieroslawski *et al* 2002a and b)

Data on the number of newborns delivered of patients in drug treatment are not available. Treatment units are not obliged to report such information for medical statistics. Drug treatment therapists commonly believe that the probability of pregnancy especially among opiates users is very low. Such a phenomenon is interpreted as a side-effect of opiate use.

Polish drug rehabilitation centres offer the possibility of accommodation for children during the time that their mother is in treatment. In 2000, 42 rehabilitation centres had 86 children living there. Among this number 38 were younger than three years old. There are ten more rehabilitation centres in the country which did not submit information on the number of children in 2000 (National Bureau 2001). Assuming that about two children were living in every rehabilitation centre the total number of children could be about 106, and those younger than three years old would be about 46. Thus, in the period 1998-2000 at least 46 female drug users were pregnant. We have, as yet, no accurate indicators to assess the real prevalence of pregnancy among the drug taking population.

(B) Data on HIV/AIDS

Data on HIV and AIDS in Poland are collected by the National Institute of Hygiene. There are no regulations on obligatory HIV testing of pregnant women and/or infants. Only blood donors are tested compulsorily.

From the beginning of the HIV epidemic in Poland in the late 1980s up to February 2001 a total of 6862 HIV positive cases had been registered. Of these, 63% (4,338) were intravenous drugs users (Szata 2000; National Institute of Hygiene 2000).

In the first half of the 1990s an increasing trend in the number of new HIV infection could be observed with relative stability during the second half of this decade. In 1999, 304 new cases were noted at the national level. Intravenous drug users constituted 86% (264) of new HIV infections. The ratio of men to women was 4:1. Populations of blood donors and intravenous drug users are the best diagnosed categories. In 1999 more than half of those in drug treatment (3848) were tested

The total number of AIDS cases from the beginning of the Polish epidemic is 975 (including 518 deaths). In 1999 108 new AIDS cases were noted, 63% were associated with intravenous drug use. Among all AIDS cases 21% were female and 9% (10 cases) children born to seropositive mothers (National Institute of Hygiene 2000).

Due to the spread of HIV infections in the 1980s discussions on harm reduction programmes was speeded up. From the beginning of 1989 syringe exchange programmes were financed by the Ministry of Health and Social Welfare. A high proportion of drug addicts attends these programmes. They also provided a means of educating users about HIV infection (Świątkiewicz *et al* 1998).

The HIV epidemic speeded up initiation of methadone maintenance programmes. There were many opponents to methadone programme implementation. This approach was considered to conflict with the principle of drug prohibition and drug free treatment. The first pilot methadone programme

was launched in 1992 by the Institute of Psychiatry and Neurology in Warsaw (Chmielewska *et al* 1998).

A legal basis for methadone programmes for opiate drug addicts was provided by the amended Law on Drug Abuse Counteracting in 1997. In Poland all substitution is provided by means of methadone. In 2000, 512 people were in methadone maintenance programmes. Primary care is not involved in these programmes and its eventual involvement has never been the issue of public discussion. In the whole country 10 drug treatment units offer methadone. Among people entering such a treatment ratio of males to females was about 3.5:1. About 100 females receive methadone. According to information from the methadone clients attending the Institute of Psychiatry and Neurology, in Warsaw, about 2 cases of pregnancy are noted per year. In general, during pregnancy a methadone programme is recommended. In practice, most females who are strongly motivated to give birth enter it (Habrat *et al* 2001).

Management of HIV positive pregnant women and their infants is relatively much more developed. Professionals from the inpatient clinic at the Medical Academy in Warsaw, and the Institute for Mother and Child and Polish Mother Centre in Łódź have collected years of experience in dealing with seropositive mothers and their infants. These institutions adopted current WHO standards. Close collaboration among gynaecologists, obstetric hospitals and paediatricians was established. The level of collaboration with the drug treatment centres and social welfare is considered to be insufficient (Niemic 2000).

According to a study conducted by Niemic (2000) in Warsaw's out-patient clinic of HIV positive women in 1992-8, among the 78 HIV-1 cases all gave birth to live singleton infants. In 15% (12 infants) HIV infection was confirmed. Antiretroviral therapy for pregnant seropositive females has been available in Poland since 1992. From November 1994 antiretroviral therapy has been based on Protocol 076. During the three years following the implementation of Protocol 076 in therapeutic practice, among 30 children born by HIV positive mothers no cases of transmission from mother to child had been noted (Marczyńska and Szczepańska-Putz 1997).

According to Niemic, "*The only intervention proven to be effective in reducing mother to child transmission of HIV at present are the use of zidovudine (either as long-course through pregnancy, labour and for six weeks to the infant, or as short-regimen), caesarean section and the avoidance of breastfeeding*" (Niemic 2000:107)

In Poland the health status of pregnant women is routinely investigated in full (including details of venereal diseases). In spite of this, medical doctors almost never suggest that pregnant women take an HIV test.

Conclusions

There are many gaps in knowledge on the prevalence of drug use during pregnancy. This issue has never been treated as a priority by Polish drug policy. Development of comprehensive specialised services for pregnant drug users would minimise many health and psychological complications for both mother and baby.

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Chapter 9 Maternal health and drug abuse in Portugal

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Summary

The authors describe CAT do Conde, a Portuguese mobile unit for pregnant drug users that since 1990 provides ante- and post-natal care in Oporto. The general management lines and some of the practices are presented. In addition, descriptive data on pregnant drug users in treatment and their children in 1999 and 2000 are included.

Os autores apresentam o CAT do Conde, unidade de tratamento ambulatório localizada no Porto (Portugal), que desde 1990 providencia apoio pré e pós-natal à mulher grávida toxicodependente. As linhas gerais do modelo de intervenção são apresentadas bem como dados descritivos da população acompanhada no CAT e informações gerais sobre as mulheres e recém-nascidos apoiados em 1999/2000.

Introduction

CAT do Conde is a mobile unit for female drug users and provides ante- and post-natal care. This service was created in 1990 as part of the C.E.P.D (Centre of Drug Studies and Prophylaxis) until 1995 when CAT do Conde became an autonomous unit. C.E.P.D. was formed in 1976 and was the first institution in Portugal that prescribed methadone hydrochloride as part of opiate dependence treatment.

CAT do Conde is located in Oporto (the second largest city in Portugal) and covers pregnant drug users residing in the north of Portugal. The patients contact us either by their own initiative or through other institutions, mostly obstetric departments and other drug treatment centres.

Health and social care system for pregnant drug users: CAT do Conde experience

When women enter CAT do Conde an initial assessment is made which includes the substance abuse history and investigations which include a pregnancy test, urine tests for heroin, cocaine, benzodiazepines and cannabis, and blood analyses for liver function test, and basic physiological indices (Flores 1997). The first appointment is arranged within a week of the referral being made. During the initial contact, the service identifies:

- Maternal adjustment and maternal attitudes during pregnancy (MAMA) (Kumar *et al* 1984); socio-economic and professional status (GRAFFAR); social support (SSNI) (Flaherty *et al* 1983); anxiety (after Zung) (Ponciano *et al* 1982); and depression (after Beck) (Diegas and Cardoso 1986).

- Medical and personal antecedents; substance abuse patterns; and present obstetric history, if the patient is pregnant.

This is an important phase where feelings towards pregnancy, abortion, desire to accept the child, and expectations for treatment can be considered. Also during this assessment phase the patient's support network is evaluated, giving special attention to the male partner or father, drug use, legal problems and work situation.

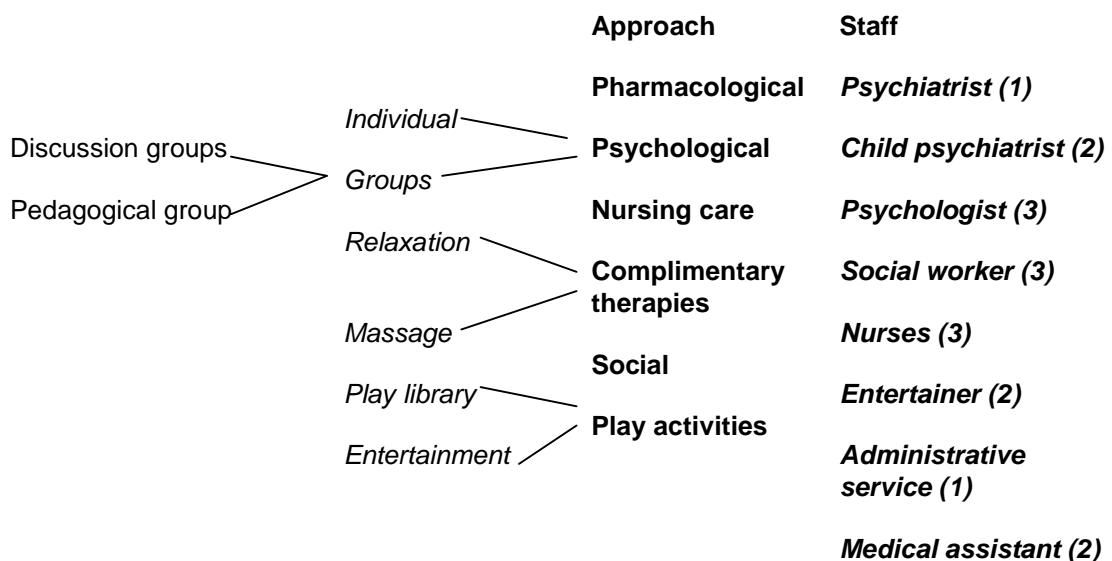
The particular team that will attend to the female client explains the functioning of the unit and introduces her to the staff who will assess and define the therapeutic strategy. The activities and staffing of the Unit are outlined in Figure 9.1. Support is provided through a multidisciplinary approach, with a team made of up of a physician, social worker or a psychologist, physician, social worker.

The women that seek treatment are usually heroin-dependent and today methadone is widely used for treatment with methadone administered in CAT do Conde on a daily basis. Due to this, breastfeeding is not advised for this population. The unit supports the practice of bottle-feeding.

The goal is abstinence and the dose of methadone is determined for each individual. In 1999/2000 the average of minimum dose was 20 mg with a maximum of 90 mg to 120 mg. The maintenance programme has regular supervised urine samples taken for toxicology. On the other hand, the maintenance programme is made more flexible if the patient has successive negative urine drug samples, complies with the therapeutic plan, has a stable lifestyle and if her partner is in treatment. During the administration of methadone, nursing staff are also available to listen, advise and comfort.

The general approach provides psychosocial support on an individual basis or in a group setting. The service has two discussion groups and a pedagogical group for pregnant women. Antenatal counselling is provided through obstetric clinics organised by Julio Dinis Maternity technicians but also through weekly pedagogic groups for pregnant women organised in CAT do Conde. These groups are open to all interested pregnant drug users and are conducted by a child psychiatrist and by the nursing staff.

The first half-hour of the group session is used to discuss topical issues like: pregnancy and sexuality; stages of intrauterine growth; types of deliveries; maternal nourishment; neonatal abstinence syndrome; nourishment and hygiene of the baby. The second half of the session is a period of free debate, where pregnant women talk about their doubts, opinions, fears, fantasies and experiences. Complementary therapies, relaxation techniques and massages are also therapeutic options within the service.

Figure 9.1. Activities and staffing of CAT do Conde

CAT do Conde provides day hospital facilities (one bed) to patients who are showing psychiatric morbidity and/or unsuccessful community management attempts.

In order to facilitate the patients' enrolment in the proposed activities, CAT do Conde has also a room for the children, with a play-library, where the children can remain. This kind of room allows observation of the children: their development, physical condition, and interaction patterns are of particular concern. In fact, children concern us as well as mothers, so there is attention to: registration of birth, vaccinations, paediatric consultations, school development, global development and assessments.

Since 1992, CAT do Conde has a newspaper called "O Rebento" (The Offspring), aimed at the patients and their 'advocates'.

The staff meets once a week, where clinical cases are discussed and also share bibliographical and theoretical themes. Besides the clinical activities, we also develop research on women and children within the field of addiction. CAT do Conde also provides under- and post-graduate training to several professional bodies that include psychiatry, child psychiatry, psychology, social work and nursing.

Community network

CAT do Conde works with pregnant drug users resident in a large area in the north of Portugal. It is therefore important to work in partnership with several services. Due to the nature and complexity of the social, health and judicial problems presented by a pregnant drug user it is essential to have an efficient community networking system in place.

In order to assure partnership, we have not only formalised protocols, but also consolidated informal connections with: (1) hospitals, for example, Department of Infectious Diseases, Joaquim Hurbano Hospital; (2) Social Security; (3) social solidarity institutions; (4) nannies, day-nurseries, kindergartens and schools; and (5) courts.

There are formalised protocols with the following services.

Santo Antonio Hospital

In 1993 CAT do Conde and the Department of Obstetric and Perinatology in Santo Antonio Hospital agreed upon a joint working protocol. The general purpose of this protocol was to improve the intervention and attendance of the pregnant drug user through an agreed multidisciplinary approach that promotes the well being of the mother and her children.

The protocol states that:

- Every pregnant drug user who wants to be followed in the obstetric department of Santo Antonio Hospital will be referred by CAT do Conde.
- Santo Antonio Hospital will refer every pregnant drug user who wants to enter into a drug addiction treatment to CAT do Conde.
- The professionals of both services will articulate the assessment of each situation and jointly plan an intervention programme.
- The discharge of the newborn will also be assessed in partnership between services.
- After discharge from the Hospital the newborn continues to attend a paediatric clinic at Santo Antonio Hospital.
- During the admission of the drug user mother to Santo Antonio Hospital, CAT do Conde will provide methadone to ensure the continuance of the substitution programme and prevent withdrawal symptoms from developing.

Julio Dinis Maternity Hospital

In 1998 a protocol was agreed between CAT do Conde and Julio Dinis Maternity Hospital, with the purpose of providing CAT do Conde with paediatric and family planning expertise and clinical services.

The protocol states that:

- Clinics occur on a weekly basis in CAT do Conde, with one session on family planning and two sessions on paediatrics.
- CAT do Conde provides the equipment and Julio Dinis provides the human resources and expertise.
- CAT do Conde provides a pre-planned methadone substitution programme while the women are in Julio Dinis Hospital, with rules agreed between the two services (stock management, registrations and administration of methadone doses).
- Monthly meetings on the effectiveness of the intervention are organised so as to further improve the service.

Play-libraries Association of Oporto

In 1998 CAT do Conde and the Play-libraries Association of Oporto (ALP-Associação de Ludotecas do Porto) agreed to organise a play-library in CAT do Conde, financed by “Projecto Vida”, an initiative in the prevention of addictions. The purpose of this agreement is to ensure new ways of human development through play activities.

- These activities annually reach 250 children (between 0 to 12 years old) and their mothers through play activities, entertainment, handicraft and art work.
- The activities take place in the CAT do Conde play-library and in the waiting room.
- All the work is discussed and assessed between the staff of CAT do Conde and of ALP.

With all the services that CAT do Conde provides, it is necessary to have informed consent to share client's information in order to assure confidentiality.

We are also aware that community resources do not stop with the services provided by the agencies mentioned above. We try to utilise other social environments such as visits to museums, holiday festivals and open air walks, with such events open to the active participation of patients, their children and partners.

Data on pregnant drug users in treatment

One of our major concerns is to characterise our pregnant drug user population in order to address their needs more appropriately. In an internal study we have gathered some descriptive information on 105 pregnant drug users that entered our Unit between 1996 and 1999.

In summary, our analysis shows: the mean age was 25.7 years; 42.9% had not completed compulsory schooling; 27.8% were unemployed and 47.4% had non-qualified jobs.

When they were first seen by CAT do Conde, 34.6% of the women had other children; 57.1% lived with the extended family; 62.5% were married or single and only 7.6% did not have any relation with the father's child.

Treatment admissions were made in 69.6% of the cases during the 2nd and 3rd trimesters; 89% of women did not plan their pregnancy and 20% of the requests for treatment were made on their own initiative. There was an HIV positivity rate of 7.6%.

The average length of drug use prior to admission was 6.5 years; 63.8% of the women started drug use after the age of 18 and all the women used heroin, alone or associated with other drugs. Two-thirds (68.8%) had positive urine results for non-prescribed drugs during the pregnancy at least once;

27% did not comply with the treatment. The attendance rates at obstetric clinics was 98%.

Children in the great majority of cases (73.5%) were born at term and weighing more than 2.5 kg (73.6%); 74% of these children presented with a neonatal withdrawal syndrome that reverted in some cases without pharmacological intervention.

Data for 1999 and 2000

CAT do Conde had 48 new admissions in 1999 and 45 admissions in 2000 who were pregnant drug users. These are summarised in Table 9.1. There were no congenital abnormalities present in any of the newborn cases. All pregnant drug users had hepatitis B and C and HIV tests. The results are given in Table 9.2.

Table 9.1. Summary of admissions to CAT do Conde, 1999 and 2000

Outcome	1999	2000
Healthy newborns	30	32
Natural abortion	1	0
Still birth (following a pre-term delivery)	1	1

Table 9.2. Results of tests for Hepatitis B and C, and HIV amongst admissions to CAT do Conde, 1999 and 2000

Test	1999	2000
HIV	Negative – 43 (89.5%) Positive – 5 (10.4%)	Negative – 41 (91.2%) Positive – 4 (8.8%)
HCV	Negative – 29 (60.4%) Positive – 19 (39.6%)	Negative – 40 (89%) Positive – 5 (11%)
HBV	Negative – 32 (66.6%) Positive – 16 (33.3%)	Negative – 33 (73.4%) Positive – 12 (26.6%)

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Chapter 10 Maternal health and drug abuse in Spain

M Torrens and A Payà

Summary

At the Hospital del Mar, a general and teaching hospital in Barcelona, pregnancy in drug-addicted women is considered a high-risk situation not only during the months of gestation but also at the time of delivery and postpartum period, as well as for the newborn. Because of the high prevalence of HIV infection in opioid-dependent patients in Spain, HIV infection related measures to avoid its spread and morbidity represent a relevant role in the management of these patients. The multidisciplinary care offered includes obstetric, drug addiction and neonatal treatment, and psychosocial services. This chapter focusses on the activities of the Obstetrics and Drug Addiction Departments in relation to pregnant drug-addicted women.

El Hospital del Mar es un hospital general universitario de Barcelona en el que la paciente toxicómana embarazada es considerada un caso de alto riesgo, no sólo durante el embarazo sino también durante el parto y el post parto. También el recién nacido es considerado un neonato de alto riesgo. Debido a la elevada prevalencia de infección por el VIH en España, las medidas para disminuir su diseminación y su morbilidad son especialmente relevantes en el manejo de estas pacientes. La atención que se ofrece es multidisciplinar incluyendo los servicios de obstetricia, toxicomanías, neonatología y psicosociales. Este capítulo se focaliza en las actividades que desarrollan en la atención de la paciente toxicómana embarazada los servicios de Obstetricia y Toxicomanías.

Introduction

This chapter looks at the health care of drug-addicted pregnant women through an examination of a model of care used by a general hospital in Barcelona, Spain.

In Spain, opioid dependence epidemics began at the end of the 1970s. During the 1980s there was a large increase in the prevalence of opioid dependence and worsened with the appearance of HIV infection. HIV epidemics were particularly severe among intravenous drug users (mainly opioid) in Spain. In Barcelona heroin addicts mainly use the intravenous route and about 53% of AIDS cases were diagnosed in the opioid addict population, and most AIDS cases were also related to the drug taking population: heterosexual transmission related to HIV-positive partners and intravenous drug use; and vertical transmission from infected drug-addicted mothers (Institut Municipal de la Salut 1999).

Barcelona is the second largest city in Spain with 1.7 million inhabitants. Data from different studies have shown that the drug addiction problem of Barcelona mirrors the problems seen in other industrialised Spanish cities.

According to a recent epidemiological study, there is an estimated prevalence of 10 to 17 heroin addicts per 1000 inhabitants aged between 15 and 44 years (Brugal *et al* 1999). Also, according to the most recent figures from the Institut Municipal de la Salut, one in every four substance abusers seeking treatment for illicit drug-addiction is a women and mostly (71%) aged from 15 to 44 years, heroin being the main drug of abuse (Organ Tècnic de Drogodependències 1999). In consequence, an important number of women with opioid dependence are of a reproductive age and as might be expected some of them will be pregnant.

Drug dependence during pregnancy is not only a perinatal issue but also a complex biopsychosocial problem that presents multiple challenges. When assessing the impact of addiction on pregnant women and ultimately on their infants, one must put into perspective the milieu within she must survive. Addiction does not only include illicit and licit drug use, medical and obstetric complications and psychiatric disorders, but also family dysfunctions, social issues, legal problems and educational deficits leading to employment failure and economic loss. Additional problems that affect drug-dependent women include: poor interpersonal skills, low self-esteem, past or present prostitution, previous incarceration, poor nutrition, lack of organising or problem-solving abilities and homelessness or lack of a stable environment (Finnegan 2000). In this chapter we will refer to some aspects of the management of pregnant drug use in a general hospital in Barcelona.

Health and social care system in the Hospital del Mar, Barcelona

The Hospital del Mar is a 400-bed general teaching hospital located near Barcelona harbour, with a catchment area covering two districts containing a population of 320,000 persons. One of these districts is the most deprived in the city with high prevalence of drug-dependence, poor income level, and increasing immigration. Since 1981 a Drug Abuse Department has been established at the hospital, which has been responsible for the management of addiction-related problems of dependent subjects admitted to any department in the centre. There is also an outpatient clinic for drug-dependent persons where a multidisciplinary approach is offered.

Being both pregnant and a drug user is considered a high-risk situation not only during the months of gestation but also at the time of delivery and postpartum period as well as for the newborn. For this reason the care in our hospital is offered in a multidisciplinary way. This includes obstetric, drug addiction, neonatal treatment, and psychosocial services. In this chapter we describe the activities of the Obstetrics and Drug Addiction Departments. We will not include the management of the newborn, which is done by paediatricians.

Obstetric care

Obstetric care is done in the general hospital. The pregnant drug user may enter prenatal care in different stages of pregnancy and from a variety of settings. This includes hospital emergency rooms, community health centres family planning clinics, drug dependence centres or social service offices. It is essential to be able to offer assessment, triage, case coordination, and referral services from any or all of these settings.

Medical complications in pregnancy involving drugs are generally quite common due to customary lifestyles and the high prevalence of total absence of prenatal care. The most frequent complications encountered in pregnant intravenous addicts include infections, such as cellulitis, hepatitis B and C, pneumonia, bacterial endocarditis, sexually transmitted diseases, and HIV infection; anaemia; thrombocytopenia; thrombophlebitis; overdoses; and multiple injuries from trauma. With cocaine use, medical complications may include myocardial infarction, cardiac arrhythmias, rupture of the ascending aorta, acute cerebrovascular accidents, seizures, and a range of psychiatric disorders, such as psychosis, panic attacks, and depression.

Obstetric complications add to the in-utero burden for the foetus, with potential adverse effects upon the newborn. Foetal wastage occurs as a result of spontaneous abortion, intrauterine death, amnionitis, chorioamnionitis, gestational diabetes, premature rupture of the membranes, and septicaemia. Placental disorders that may occur include abruption placentae, infarction, and insufficiency. Because of the lack of prenatal care, many women are predisposed to pre-eclampsia or eclampsia. The most commonly seen obstetrical complications are preterm delivery and intrauterine growth retardation (IGR) (Finnegan and Kandall 1997).

Prenatal care in drug-addicted women

Many substance-dependent women present late for care, because they often misinterpret the signs and symptoms of pregnancy. Menstrual problems, especially amenorrhea, are common in this population (Finnegan, 1980). This is due both to the intermittent administration of heroin, which reduces the release of luteinising hormone (LH) from the hypothalamus, thereby preventing ovulation and disrupting menstruation and the concomitant nutritional deficiencies, infections and psychosocial stresses of illicit drug use. Because of these menstrual abnormalities, within the drug subculture it is thought that a woman is unlikely to become pregnant while she is using heroin. This is, in part, responsible for a neglect of contraception. Also, when heroin-using women do become pregnant, it is often unexpected and the early signs and symptoms (nausea, headache, fatigue, etc) may be mistaken for withdrawal symptoms or the effects of "dirty drugs". This means that they are pregnant and hence do not present for treatment until relatively late.

In the majority of cases, one of the initial problems posed by drug-addicted pregnant women is the diagnosis of gestation because on many occasions the first visits takes place in an advanced stage of gestation, given that amenorrhoea and menstrual disorders related to drug dependence are very common. Another frequent problem is the rate of false positive results (5%) in

pregnancy diagnostic tests in heroin-addicted women as well as in women following methadone maintenance treatment programmes. The percentage of false positive results varies according to the laboratory test employed, but in doubtful cases diagnosis is made by determination of beta-HGC hormone in the peripheral blood (radioimmunoassay). However, definite diagnosis is established by identification of the intrauterine gestational sac and the embryo by abdominal ultrasonography.

In our centre, the first prenatal visit should be done in a patient with an advanced pregnancy with no previous prenatal care, living in a high-risk environment and who does not know about her pregnancy until foetal movements start.

If a patient has not previously contacted the Drug Abuse Department, an assessment and initiation of treatment for drug abuse problems is done immediately. If drug addiction is not under treatment, adequate obstetric control will be very difficult and the risk of medical and obstetrics problems will increase.

The first prenatal visit should establish the components of the continuum of care that will extend through the woman's pregnancy and beyond. The visit should include the following components:

1. Obtain a detailed health history covering legal and illegal drug use; medical history; current medications; psychosocial history, complete reproductive history, including current and past pregnancies, previous preterm deliveries, history of caesarean sections, birth weight, number of therapeutic abortions, menstrual history, and methods of family planning; and sexual history, including previous sexually transmitted diseases.
2. Conduct a physical examination including an evaluation of nutritional status, height, weight, and blood pressure, as well as an examination of the head, neck, breast, heart, lungs, abdomen, pelvis and extremities. During the pelvic examination, attention should be given to the size of the uterus in relation to the presumed duration of the pregnancy.
3. Other studies including:
 - Blood tests to determine:
 - Complete blood count including platelet count
 - Coagulation tests
 - Blood group, Rh factor determination
 - Serum glucose, liver enzymes and renal function tests
 - Tests for syphilis, toxoplasmosis, rubella, hepatitis B surface antigen, hepatitis C antibodies and HIV antibodies.
 - Diabetic screening (O'Sullivan test) between weeks 24 to 28 of pregnancy.
 - Urine drug screening

- Ultrasound test to date gestation and detect malformations. The ultrasound test would be more often from week 32 to detect IGR.
- Cervical culture during the first control and at third trimester of pregnancy.
- Cardiotocographic recording (sonograms) between 32 to 34 weeks of gestation, particularly in cases in which IGR is suspected and to detect subclinical dynamic uterine activity that may initiate pre-term labour; sonograms should then be performed at weekly intervals up to the end of pregnancy.

Detection of the most prevalent obstetric pathological conditions, such as intrauterine growth retardation and prematurity can only be attained by making women aware of the importance of antenatal control visits.

Intrauterine growth retardation including its sequelae (antenatal and intrapartum hypoxia, residual neonatal lesions, etc.) can be diagnosed by serial ultrasonographic study of foetal biometry. Early detection of IGR would later be followed by the patient's admission to a specialised unit (high-risk obstetric units) where, in addition to bed rest, other tests of foetal wellbeing (non-stress test, maternofoetal Doppler) and foetal pulmonary maturity will be performed.

With regards to prematurity, early detection of cervical changes or uterine dynamics is essential, so that it is extremely important to inform the patient about early signs of pre-term labour threat (uterine contractions, amniotic fluid leakage, metrorrhagia, etc.) and to advise her to contact immediately the reference centre. In these circumstances, pharmacological inhibition of uterine contractions by tocolytic drugs should be considered.

Labour and delivery

Labour and delivery for women who abuse drugs also have to be considered as high-risk situations. The appearance of critical events for the mother or the foetus during labour is common. Depending on the time elapsed from the last heroin dose to the time of delivery, the presence of withdrawal symptoms may be anticipated. Accordingly, it is necessary to ask the patient regarding consumption of the last dose of opioid in order to meet all needs at the time of hospital admission and to prevent the development of withdrawal symptoms.

Also frequently encountered is the presence of foetal stress in relation to exposure of the foetus to chronic hypoxia that may have been tolerated during the gestational period but that can be worsened by uterine dynamics during labour. It is therefore important to monitor foetal heart rate and uterine dynamics in association with foetal biochemical control when needed. Because most of these patients are infected by HIV, it should be remembered that all measures directed to minimise HIV vertical transmission should be implemented (Newell *et al* 1996), such as:

- To avoid foetal skull sampling for biochemical tests
- To avoid long duration of ruptured membranes

- Intrapartum antiretroviral treatment with the administration of zidovudine to the mother and then to the newborn (ACTG 076) (Connor *et al* 1994).
- Prevention of breast-feeding.

In relation to the use of analgesic and anaesthetic techniques during labour, the same principles as in non-heroin dependent women should be applied. Drug-addicted patients, however, usually show a lower threshold of pain tolerance, and in most cases higher doses of analgesic agents are required. Local anaesthesia and among these techniques, epidural anaesthesia, is generally the procedure of choice for an uncomplicated labour.

Postpartum care

The Drug Addiction Department of the hospital is contacted during the immediate postpartum period for the control of drug addiction during postpartum and later on.

One advantage regarding the pharmacological treatment of opiate dependence with methadone is that breast-feeding can be considered if the mother is not abusing other drugs. Only small amounts of methadone have been detected in the breast milk of mothers on dosages up to 50 mg. Since much smaller amounts of this medication appear in the breast milk, this is not adequate treatment for the newborn undergoing abstinence. If the mother is abusing drugs, or if there are infections such as HIV or hepatitis, breast-feeding is contra-indicated (Newell and Peckham 1994)

Drug addiction treatment

The pregnant drug user is always referred to the Drug Abuse Department. If a patient is admitted to the hospital, the specialist from the Drug Abuse Department will attend her during the admission, and at discharge, he will refer her to the outpatient centre to continue the addiction treatment. The management of pregnant drug abusers during admission to the hospital has been reported in a previous study (Torrens *et al* 1996).

If the Obstetric Department assesses the patient in an outpatient setting, the obstetrician will contact the Drug Abuse Department. The team in the latter Department is multidisciplinary and includes: psychiatrists, a general practitioner expert in infectious diseases, social workers and nurses. Many treatments for drug addiction are available depending on the main drug problem. They include methadone maintenance programme, in- and outpatient detoxification, drug-free programme, naltrexone programme. We recognise the relevance that pregnant drug abusers participate in a treatment programme for drug use as soon as possible.

First, we obtain a detailed history covering legal and illegal drug uses and last dates of use; drugs used at the time of the first visit; medical history; current medications; psychiatric history, including emotional problems, mental illness;

and social history including housing and current living arrangements, with a special focus on the presence or lack of support systems.

Because methadone maintenance has proved effective in the treatment of pregnant opioid-dependent women (Finnegan 2000), this treatment is promptly recommended to these patients. Pregnancy is considered a priority and they are never put on a waiting list, the admission to methadone maintenance treatment is immediate. It has been demonstrated that treatment with methadone, when delivered with comprehensive services that include prenatal care, can reduce the incidence of obstetric and foetal complications, and that of neonatal morbidity and mortality (Finnegan and Kandall 1997).

In addition to classical benefits (preventing the onset of opioid withdrawal syndrome for 24-36 hours, decreasing or eliminating drug craving, and blocking the euphoric effects of illicit narcotics), methadone maintenance therapy for the pregnant woman also prevents erratic maternal opioid levels and protects the foetus from repeated episodes of withdrawal, decreases women's risk of HIV infection or hepatitis and reduces drug-seeking behaviours, such as prostitution, which increases the chance of sexually transmitted diseases. Methadone maintained women can experience signs and symptoms of withdrawal as pregnancy progresses, and require increasing doses to remain withdrawal free. Higher doses of methadone in the third trimester have been associated with improved foetal growth and longer duration of gestation; as a result, more liberal dosing in pregnancy may improve initial and long-term neonatal outcome (Mitchell 1993).

Participation in an alcohol and other drug treatment programme is also important for those women using and abusing other drugs, such as alcohol, cocaine, benzodiazepines, cannabinoids and hallucinogens.

The delivery of comprehensive services to substance-using women should continue postpartum.

Psychosocial services

Psychosocial services, including psychiatric and social care, are offered in the Drug Abuse Department.

When a pregnant drug user presents at the Department an extensive and careful mental health assessment is carried out. Drug-induced psychiatric symptoms and major mental disorder have to be excluded or diagnosed. When a diagnosis of a mental illness is confirmed, the need for medication, such as antidepressants or antipsychotics, has to be evaluated. Also, arrangements for developing an overall mental health treatment plan are undertaken.

Social counselling is provided by experienced social workers that are aware of the medical needs, as well as the social and psychological needs of this population. Services include, but are not limited to, provision of housing,

childcare, legal services and counselling about interpersonal relations. The ability of a mother to care for the infant after discharge from the hospital is also assessed by special services provided by the city council who work closely with the paediatrician and drug abuse team.

Data on pregnant drug users in treatment services

During 1999 and 2000 there were only six pregnant drug users who attended the addiction outpatient centre. All of these cases were opioid dependent and all were referred from the obstetric department. None of these cases had previous treatment for their drug dependence and in all cases methadone maintenance treatment was indicated. Their hepatitis and HIV positivity are given in Table 10.1.

Table 10.1. Hepatitis B and C, HIV status of pregnant drug users attending treatment services at the Hospital del Mar, Barcelona, 1999 and 2000

3 cases	HIV negative	HCV negative	HBV negative
2 cases	HIV negative	HCV positive	HBV negative
1 case	HIV negative	HCV positive	HBV positive

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Summary

Drug use by females in the general population of the United Kingdom (UK) is lower than amongst their male counterparts, being more experimental and shorter-term. The difference is more marked when it comes to problematic drug use, only one-quarter of all presentations to treatment services are by women and those who do seek help are proportionately more likely to use dependence-causing drugs. There is very little information on the nature and extent of problems for drug users who are pregnant or their children. However, it appears that the number of pregnancies where drug misuse is recorded varies considerably from region to region and that there has been a general increase since the early 1990s. One study suggests that perhaps nearly three-quarters of babies born to drug-misusing mothers are themselves drug dependent. There appear to be very few fatalities of mothers or neonates attributed directly to drug misuse.

It is thought that relatively few female problematic drug users access services. However, research is needed to substantiate this opinion. There has been a change in approach to female drug users. Their special needs began to be recognised in the UK in the mid-1990s, and great strides have been made in identifying barriers to accessing services and making them more responsive. There is now a greater emphasis on 'shared care', multi-disciplinary and multi-agency working. The needs of the mother, her neonate and other children are now recognised as being important; the family unit as a whole is now the focus of care. Different models of care are being promulgated but there are no national standards of care laid down. High standard guidance and resources are now being made available by central government, professional bodies and treatment agencies. Some attention is being given to evaluation and research but this is still an underdeveloped area.

Introduction

"Although awareness of women's needs has risen considerably in the UK over recent years, the organisational response from drug and maternity services has been slow. Since pregnant drug users form an increasingly large high-risk population, the need for measures to improve the quality of care for them has become urgent. However, there is evidence already that services can rise to the occasion in meeting the needs of pregnant drug users."

[Extract from Preface to *Drug Misuse and Motherhood* (Klee *et al* 2002).]

This chapter serves as an overview of the situation in the United Kingdom (UK) with regard to that part of the female drug using population which is

pregnant or has children. It examines the special issues unique to this group and their implications for services, before looking at the responses which have been made to date, and considering what still remains to be addressed. This is not intended as a definitive account but as a means of setting out the background against which the three case studies in Chapter 12 can be viewed.

Drug use amongst the general female population

Generally speaking, the types of drug consumed amongst the general population in the UK vary very little between males and females. For example, the 2000 British Crime Survey (which covers England and Wales) found the following hierarchy of drugs in terms of lifetime use levels: cannabis, amphetamine, 'poppers' (nitrates), LSD, ecstasy, cocaine, magic mushrooms, tranquillisers (benzodiazepines, etc.), crack, heroin, methadone, steroids (Ramsay *et al* 2001). However, the level of use by females is normally lower than that of males. Thus, the 2000 Survey found that 40% of males aged 16 to 59 years admitted taking illegal drugs in their lifetime compared to 28% of females; last year rates were 14% and 8% respectively. One exception to this is pattern is in those aged 16-19; in this age group the rates do not differ significantly. By and large, drug use by women is more experimental, and they tend to mature out of this activity earlier than men do.

For both sexes, the twenties are the peak age for drug use, the highest levels occurring in the 20-24 age group. An examination of the lifetime and last year use rates for women in this latter category shows worrying increases in the level of cannabis and cocaine for both recall periods between 1994 and 2000, and of lifetime use of amphetamine and ecstasy (see Table 11.1).

Turning to the picture in Scotland in 2000, we find a similar order for the lifetime use of drugs amongst females, although tranquillisers such as temazepam and diazepam feature higher up the list (Fraser 2002). Lifetime use for women aged 16-59 in 2000 was lower (16%) than that of men (22%), and fell away more rapidly than for men. Last year use was also lower for women (5.7 vs. 7.6% respectively). Once again, the levels of lifetime use amongst 16-19 year olds is very similar, although in some instances female use is higher e.g. benzodiazepines, cocaine and amphetamine. Again, it is the 20-24 age group that demonstrates the highest lifetime and last year usage rates (see Table 11.2). Last year use by females aged 16-24 years remained stable between 1996 (20%) and 2000 (19%).

Table 11.1. Lifetime and last year drug use (%) for women aged 20-24, England and Wales, 1994-2000 (Source: taken from Table 3.6, Ramsay *et al* 2001)

Drug and period	1994	1996	1998	2000
Cocaine				
Lifetime	2	3	7	11
Last year	1	1	4	4
Amphetamine				
Lifetime	13	16	22	28
Last year	6	6	8	6
Ecstasy				
Lifetime	6	8	11	12
Last year	3	3	5	3
Tranquillisers				
Lifetime	3	3	3	2
Last year	1	-	1	1
Cannabis				
Lifetime	30	36	41	49
Last year	17	20	20	24
Any drug				
Lifetime	38	43	48	54
Last year	20	23	22	26

Table 11.2. Lifetime and last year drug use (%) for women aged 20-24, Scotland, 2000 (Source: taken from Appendix, Fraser 2002)

Drug	Lifetime	Last year
Cannabis	33	13
Amphetamine	15	0
Ecstasy	11	4
LSD	7	1
Cocaine	4	4
'Poppers'	4	2
Temazepam	3	2
'Crack'	2	0
Heroin	2	0
Valium	2	0
Methadone	<1	0
Steroids	<1	0
Any drug	40	17

Information on general drug use patterns is not as extensive for Northern Ireland. However, the latest published data - for 1998 - also show lower lifetime usage rates for females for all drugs except tranquillisers (Hague *et al* 2000). The lifetime rate for females in 1998 was 19% compared to 30% for men; last year use was also lower (5 vs. 13%). Lifetime use rose from 16 to 19% for women between 1995 and 1998. Drug use by females in the Province is highest amongst those aged under 30. Lifetime crack use of females in this age group is on a par with males, and for methadone exceeds it. Amongst all women, lifetime rates in 1998 for specific drugs were: cannabis 13%; amphetamine and amyl nitrate 4%; ecstasy, LSD and tranquillisers 3%; 'magic mushrooms' 2%; cocaine and steroids 1%; crack, heroin and methadone <1%.

Drug use amongst female problematic drug users

Whilst the use by women in the general population of some dependence-causing drugs, such as crack, cocaine and heroin, is fairly low other drugs with the same potential - such as amphetamines and tranquillisers - feature more prominently. However, when one looks at problematic drug use, a somewhat different picture emerges. Over the last year or two, approximately 11,000 new agency episodes relating to women and young females presenting for treatment were notified to the Drug Misuse Databases across the UK.

Amongst drug users notified by treatment services to the Regional Drug Misuse Databases in England, heroin accounts for more than two-thirds of all presentations, followed by methadone, cocaine and then cannabis. Both males and females exhibit similar patterns although the rates are slightly higher for females in respect of methadone, other opiates, and amphetamines but lower for cannabis in terms of the main drug of misuse. The main drugs causing problems for the 8,457 women starting agency episodes in the six-month period ending 31 March 2001 were: heroin 67%, methadone 10%, cocaine 7%, cannabis 6, amphetamines 3, other opiates and benzodiazepines both 2% (DH 2002). Where injecting status was known, the proportion of females injecting in the last 4 weeks (38%) was lower than that for males (45%), but the level of sharing 'works' was higher (24% vs. 18%).

In 2000, 27.5% of notifications to the Welsh Drug Misuse Database were females, half of whom were under 30 years old. Of the 1559 notified, 511 were notified for the first time. The main drugs used by this group were heroin 46%, stimulants 19%, cannabis 17%, benzodiazepines 10%, other opiates 7%, methadone 5%, and cocaine 2% (WDAU & DMRU 2001).

Nearly one-third (32.6%) of those notified to the Scottish Drug Misuse Database in the year ending March 2002 were female (3,520 women). There have been two shifts in the structure of the population being reported to the Database over recent years (ISD 2003). First, a small increase in the proportion of women reported in each age group means that the male: female ratios are currently: <20 years = 1.3:1; 20-29 years = 2.0:1; 30 years and

over = 2.5:1; overall 2.1:1. Second, a shift within the female population: for example, the proportion aged 15-19 fell from 19% in 1997/8 to 13% in 2001/2 whilst those aged 30-34 rose from 14 to 17% and those aged 35-39 from 6 to 9% during the same period. The median age (26 years) and age-range (12-61 years) of females notified in 2001/2 was similar to that for males. Unfortunately, no breakdown of the main drugs of misuse by gender is published.

The patterns relating to the main drug of misuse in Northern Ireland are different for women. In the year ending March 2002, other opiates were cited by 30% of the 235 females reported (four times the male rate), cannabis 20% (half the male rate), heroin 14% (compared to 24%), ecstasy 10%, and benzodiazepines 9% (double the male rate). However, injecting (16%) and sharing (19%) rates were half that of those for males. Whereas 24% of males were aged 30 or more, the proportion for females was 44% (DHSSPS 2002).

Overall, females consistently accounted for around one-quarter of all notifications in England between 1993 and 2001. This proportion is highest in the 15-24 age group (including up to one-third in the under 20 age-band) but is then constant up to the age of 54. At the end of March 2001, females accounted for 25.4% of notifications in England, 24.5% in Wales, but 31.6% in Scotland (32.6% a year later). For the year ending March 2002, the relevant proportion in Northern Ireland was 25.6% (DHSSPS 2002). Thus, amongst problematic drug users, the ratio of males to females is about 3:1 for England, Wales and Northern Ireland but about 2:1 for Scotland.

Across Great Britain most females presenting to treatment services are in their early twenties (the proportion ranging from 27 to 30%). Whilst this is also true of Northern Ireland, the proportion accounted for by this age group is only 20%. When one looks at women in their late twenties, there is a divergence of patterns: the proportion of women in this age-group varies from 28% in Scotland, through 22% in England and 21% in Wales to only 14% in Northern Ireland. This means that the age-structure of the female problematic drug-using population varies across the UK, and needs to be borne in mind when formulating treatment policies. These differences in age-structures also probably relate to varying types of drug use, for example, relatively higher numbers of older female opiate users in Scotland and Northern Ireland.

Confirmation of differences between male and female problematic drug users is provided by research on individuals arrested by British police (Bennett 2000; McKeganey *et al* 2000). Information presented in Table 11.3 shows higher rates of positive urine tests for women for a number of drugs. What is worthy of note is that these rates vary between England & Wales and Scotland. Results from these research projects also show that women tend to spend more on their drugs; this may be linked to their higher rate of use of opiates (and cocaine in England & Wales). The Scottish research found a higher rate of injecting by women.

Table 11.3. Percentage positive urine tests for selected substances by gender of arrestees, England & Wales and Scotland 1999 (Sources: Taken from Bennett 2000; McKeganey *et al* 2000)

Substance	England & Wales		Scotland	
	Male	Female	Male	Female
Cannabis	51	33	54	42
Opiates	26	45	26	51
Cocaine	19	30	3	2
Amphetamine	11	19	7	8
Benzodiazepines	12	12	30	43
Methadone	8	10	10	19
Alcohol	24	10	34	23
N	439	67	227	53

Pregnant drug users

More than 90% of female drug users presenting to treatment services are of childbearing age (Clarke and Formby 2000). There is very little or nothing actually published in the UK in terms of statistics on the number of (a) pregnant drug misusers and (b) pregnancies occurring to drug misusing mothers. The lack of specificity of data from hospital health episodes means there is no routine statistical data on the transmission of infection to neonates or neonatal addiction. Likewise, it is not possible to distinguish damage to the foetus or neonate from drug effects or other potential sources of harm. The only means of getting this sort of information in England is through case note studies of maternity and neonatal records (Wilkinson *et al* 2002:5). Here we examine what information is available.

ISD Scotland has been collecting information since 1976 on maternity discharges from Scottish hospitals using Scottish Morbidity Records. These figures show that the number of pregnancies where drug misuse (defined as ICD 10 codes 035.5, F11 - F16, F18 and F19) was recorded rose from 139 in 1997/8 to 228 in 2000/1, or an increase in the rate per 1,000 maternities from 2.4 to 4.4 (ISD 2003:33). This rate varied in 2000/1 across Scotland from zero in some council areas to 1.6 in Dundee, 1.4 in Aberdeen and 1.3 in Glasgow. The highest rate of 10.7 was recorded amongst the 20-24 year age group. Over one-third (36%) of cases were in the Greater Glasgow Health Board area, and a further 17% in Grampian.

Eighty per cent of the 226 singleton live births in 2000/1 where drugs misuse was recorded were spontaneous deliveries. Other modes of delivery were: forceps 7.1%; vacuum 3.5%; breech nil; elective caesarean 1.3%, and emergency caesarean 8%. About one-quarter (25.7%) were induced. There were two still births. Of the 228 live and still births, there were 35 pre-term births: 6 had a very low birthweight (<1500g), 21 a low birthweight (1500 - 2499g) and 8 a normal birthweight (2500g+). Where pregnancies went to full term, there were no cases with a very low birthweight, only 17 with a low birthweight and 176 with a normal birthweight. The majority of these births (158/228) were in areas that are considered most deprived according to a composite rating based on a number of measures.

There were 17,222 neonatal special care discharges in Scotland in 2000/1; 326 (1.9 %) included a diagnosis of drug misuse (Scottish Executive 2003). This total included 94 cases (29%) in Greater Glasgow, 98 cases (30%) in Grampian and 29 cases (9%) in Argyll and Clyde.

A postal survey in 1993 of maternity units in England and Wales estimated the incidence of babies to drug-misusing women to be 0.81 per 1,000 deliveries (Morrison and Siney (1995). It is likely that this rate of incidence is now considerably higher. Three per cent of new female episodes reported in 2001/2 to the Scottish Drug Misuse Database presented with pregnancy issues; the rate was highest in Argyll and Clyde with 9% (ISD 2003:69).

An audit of a dedicated maternity service for pregnant drug misusers established in 1993 in Bristol (south west England) found that the number of mothers using it rose from 15 in its first year to 69 in 1997/8 (Myles 2000). Two-thirds of the neonates born in 1993 needed neonatal intensive care for NAS. By 1997/8 this proportion had fallen to one-third. Rates for neonatal death, premature delivery and caesarean section were also reduced.

During 2001, 27 out of 37 maternity units in the former Northern and Yorkshire Region of England knew how many drug-misusing women had been seen antenatally. A total of 497 women were seen by these units (9.3 per 1,000 deliveries). Twenty units knew how many such drug misusers they had delivered: 384 deliveries (7.9 per 1,000 deliveries). Twenty-six units delivered 365 live births (7.5 per 1,000 live births). The rates for the former separate regions in 1993 were 0.19 and 0.22 per deliveries respectively (Morrison and Siney 1995). This increase may be due to greater numbers of drug misusers giving birth and better identification and ascertainment of cases. Twenty units were able to provide information on the number of babies born or suspected of being drug dependent themselves; there were 181 such babies (5.5 per 1,000 live births). Nearly three-quarters of babies born to drug-misusing women are drug dependent. Heroin and cocaine gave rise to higher rates of dependency in babies; cannabis was recorded as less of a problem. In total 139 babies on 30 units received pharmacological treatment (2.8 per 1,000 live births); overall 37% of babies born to pregnant drug-misusing women received pharmacological treatment for withdrawal symptoms - mostly within the maternity unit's own Special Care Baby Unit or Neonatal Intensive Care Unit (Grandey *et al* 2002).

Physiological and psychological issues

The physiological effects of specific drugs and psychological issues relevant to pregnant drug users have been discussed in earlier chapters. Here we simply note that drug use can cause direct and indirect complications throughout pregnancy, developmental delays in the newborn and postnatal morbidity. Late antenatal presentation and little antenatal care are problems commonly associated with pregnant drug-misusing females. Part of the reason for late presentation is that many drug-misusing women cease to have normal periods. They also often assume falsely that they are less fertile and do not therefore need to be so concerned with regard to contraception. ARAC (1999) found that the specific health needs of female substance misusers involved weight loss, gynaecological and obstetric issues.

This section next provides some information on some of the more severe adverse consequences. Detailed examples from the UK are given in the case studies presented in the next chapter.

All UK data sources suggest that there is a trend for 'acute' drug-related deaths to become more male-dominated, with male deaths in 1998-2000 outnumbering female ones by two to one in Northern Ireland and by four to one in Great Britain. Males are more likely than females to die from accidental poisonings, whereas the reverse is true for intentional self-poisoning (Corkery 2002).

According to statistics published by the General Register Offices in the UK, there appears to be very few still births or infant deaths (i.e. aged less than one year) where drug misuse was implicated. However, the published figures do not give sufficiently detailed information on the cause of death to make a definitive statement on this topic. There are only summary figures based on ICD External Cause codes to go on.

In Northern Ireland in 2001 there were two cases (one male and one female) of infant deaths recorded using ICD10 codes V00-Y89, rates of 0.1/1000 live births for both genders (NISRA 2002). In Scotland in 2001, using ICD10 codes V01-Y98 there were 4 male and 3 female infant deaths, rates of 0.1/1000 live births (GROS 2002). The most recent figures for England and Wales relate to 2000 (ONS 2002). These show a total of 2 stillbirths (both males) where the maternal condition was recorded under ICD9 external codes: E854.2 (accidental poisoning by psychostimulants) and E962 (assault by poisoning). There was one neonatal death of a male aged less than one week where the cause was given as E947.9 (unspecified drug or medicament).

The reports from the Confidential Enquiry into Stillbirth and Deaths in Infancy (for example, CESDI 2001) do not refer to the role of maternal drug misuse. However, the latest report from the Confidential Enquiry into Maternal Deaths devotes a chapter to maternal deaths from psychiatric causes, which includes alcohol and drug use (CEMD 2001). This Confidential Enquiry considered 7 cases relating to drugs under this heading, six overdoses (two during

pregnancy and four 42 days or more after delivery) and one adverse drug reaction to antipsychotic medication (within 42 days of delivery). All 7 were heroin users and had been in contact with drug services in the past, but had a poor history of attendance either for psychiatric or antenatal appointments. In addition, eleven cases involving accidental drug overdoses were not reported to the Enquiry.

Three of the six overdoses involved psychotropic drugs (one in pregnancy and the other two more than 42 weeks after delivery, one heroin. These women were mostly single, all had 'marked social adversity', 3 were 19 years old or under, 2 were in their twenties, and one was 30 or over. Six of these cases were presumed to be accidental overdoses - one from recreational drugs, the seventh committed suicide having taken heroin. The Enquiry team noted:

"The increased risk of suicide and accidental death is well established in both drug- and alcohol-dependent women. Their pregnancies and adjustments to motherhood are also known to be problematic. This, together with the established difficulty in attending outpatient appointments and regular compliance with treatment programmes, would suggest that maternity units, and antenatal clinics in particular, should provide open access to substance misuse advisors. The women could then be engaged at the time of their visit, perhaps improving the outcome for both mother and child" (CEMD 2001:175).

Miller (1996) found that there were very high rates of terminations amongst drug users due to unwanted pregnancies. Contraception was not used by 60% of those drug users who were sexually active. These findings suggested that consideration should be given to the establishment of contraception services within drug and alcohol services.

Accessing services

As has already been noted, although the level of drug amongst men and women is very similar in younger age groups it drops off earlier for women. The numbers presenting for treatment are very different, and those women who do so have a different drug use profile to that of men. In particular they have proportionately higher rates of use of dependence-causing drugs especially opiates, amphetamines and benzodiazepines.

It has only been recognised for a relatively short time that female drug users have a range of specific needs that require consideration, including issues relating to pregnancy and childcare. Women drug users also face greater exposure to dangers arising from prostitution, sexually transmitted diseases (STDs), physical and sexual abuse, and mental health problems.

A number of reasons have been advanced as to why fewer women present to drug treatment services (ARAC 1999; Becker and Duffy 2002; Mayor of London & GLADA 2003):

- There are fewer female users in the typical age group at which users present for treatment;
- Women feel more inhibited about approaching services;
- There are inadequate/inappropriate services available to address their needs;
- Additional barriers or disincentives restrict access (see Becker and Duffy 2002 for a more detailed discussion);
 - Stigma associated with being a woman and/or mother and a drug user
 - Fear of contact with statutory agencies concerning child protection issues
 - Lack of appropriate childcare provision
 - Ineffective inter-agency working, for example between maternity units and local drug agencies
 - Weakness in maternity services
 - Lack of services catering specifically for black and minority ethnic female drug users
 - Lack of women-only services
 - Lack of transport facilities
 - Poor social support networks
 - Negative attitudes of health professionals
 - Inadequate services within the Criminal Justice System.

Service delivery

Research has consistently demonstrated weaknesses in total maternity services for drug users in terms of design, content and delivery; and for obstetric and midwifery services (Hepburn 1993; Macrory 1994, Klee *et al* 1995). Powis *et al* (1997) found a lack of provision for drug users throughout the maternity services. Only 29% of National Health Service maternity units in England and Wales in the mid-nineties had formal links with local drug services (Morrison and Siney 1995). Morrison and Siney (1995) called for greater encouragement of liaison between health care agencies, with increased sharing of experience and training between agencies whose clients misuse drugs. Klee *et al* (1995) also emphasised these requirements. They found that differences in approach to confidentiality, 'territorial ambiguities', and insufficient co-ordination between professionals was not conducive to effective liaison. Klee *et al* (1995) recommended improved transmission of information between professionals, and research into and development of models of care for pregnant drug users.

Greater London appears to be either failing to reach as high a proportion of female drug users presenting for treatment as it once did or there are far more males seeking treatment. Since the beginning of the nineties, the male:female ratio for the region has increased substantially. The Thames Drug Misuse Database recorded a ratio of 2:1 in 1991/2, growing to 2.8:1 in 1997/8 and 3:1 in 1998 (Sondhi *et al* 1999); it is still at this level - the same as for England as a whole (DH 2002).

ARAC reported in 1999 that many London substance misuse services did make specific arrangements for women, including the provision of crèches, payment towards childcare and women-only sessions. They found that London obstetric units were becoming more alert to the issues related to drug and alcohol users. Two examples of good practice cited were:

- Hammersmith and Fulham has a liaison service linking the obstetric department and the substance misuse services;
- St George's Hospital has an agreed protocol for managing pregnant users between the obstetric department, drug & alcohol services and social services (see Section B of Chapter 12 for a fuller description).

Despite this, the ARAC review considered overall practice to be variable and that there was a perceived need for communicating good practice and practice standardisation (ARAC 1999:47). Similarly, a small-scale exercise to map services for the children of substance misusers in west London concluded that inter-agency working could be improved (BKCW SMS 2001).

During 2001, in the Northern and Yorkshire Region, nearly 90% of maternity units said that all women making antenatal bookings were asked about their drug use (Grandey *et al* 2002). All 37 units had access to drug treatment teams, nearly two-thirds (62%) of them to named individuals who had specialist expertise in drug misuse/dependency in pregnancy. Most of these 'specialists' performed this role alongside other midwifery duties. Three-quarters of units had special arrangements for pregnant drug misusers including specific protocols. One-fifth (7) of units had facilities for detoxification within the maternity unit; another 3 units said they would continue to supply methadone - but only if the client was already on a detoxification programme.

In this Region, 27% of maternity units said that had neither a specific protocol for drug misusers nor a section on drug misusers within a general protocol. Half of the units that had protocols employed ones covering the ante-, intra- and post-natal periods; three other units had protocols for some of these periods. Multi-agency protocols were in place in 15 units with several others developing them; a quarter of the units (10) had specific arrangements for referral to drug treatment services.

Most units held planning meetings during the antenatal period, with a range of different professionals attending. However, these meetings were not always held - only one-third of units always held them. The mother-to-be would not always be invited to the meetings. Postnatal planning meetings were far less common. One-fifth of units automatically referred known pregnant drug misusers to child protection services, whilst the majority did so on a case-by-case basis. Nearly all units made special efforts to follow up those who failed to attend for antenatal care.

Improving delivery

Becker and Duffy (2002) argue that the key principles of working with female drug users should be (a) being women-centred (b) adopting a needs-led approach and (c) having an understanding that the other needs of women cannot be separated from those arising from drug misuse. They outline five ways in which drug workers seek to meet these diverse and complex needs.

- Building trust and confronting confidentiality issues;
- Avoiding crises and relapses through dealing immediately with the most pressing needs and assisting to provide continuing help from appropriate agencies;
- Screening women presenting to treatment services for co-existing mental health problems;
- Motivating and encouraging attendance at services by offering specific tangible activities; and
- Carrying out community needs-assessments of female drug users.

Inter-agency working is regarded as more than referral to and from services, it includes: offering seamless services; all agencies adopting a consistent approach; making sure communications and decisions are transparent; and an understanding of the mind-sets of the various agencies and the commonalities and differences. The key partners in providing services to female drug users are many and varied (see Table 11.4).

Table 11.4. Key partners for treatment agencies in providing services to female drug users in the UK (Source: Table 4.1, Becker and Duffy 2002)

Supporting clients of drugs services	Supporting children of clients of drug services
Community drugs teams (Addiction services in Scotland)	Midwives
GPs	Health visitors
Mental health professionals	Sure Start
Social services departments - Adult services (Social work departments in Scotland)	Nurseries
Probation officers	Pre-schools
CARAT workers in prisons	Playgroups
Benefits Agency	Schools
Citizens Advice Bureaux	On Track
Housing departments	Connexions

Promoting stronger links between drug workers and key agencies is essential for delivering the best possible care packages to female drug users. This can be done in a number of ways. Drugs services can promote what they offer to

key partners, develop their credibility, extend support and training, develop shared protocols of care, sharing information about clients. This is particularly important with regard to agencies dealing with pregnant drug users.

Developments in policy approaches and guidance

The need to revise the existing clinical guidelines on drug misuse and dependence was recognised by the Department of Health in 1997. New guidelines were issued by the Department (DH 1999) which took into account the policy implications of the UK Drug Strategy document *Tackling drugs together* (HMSO 1995), the emergence of new patterns of drug misuse, and new developments in treatment, rehabilitation and prevention.

The guidelines form the basis for the clinical management of problem drug misusers in the UK. A five-page annex (Annex 5) deals specifically with pregnancy and neonatal care, emphasising shared care and multidisciplinary working - as for other drug-using populations. The Annex is couched in very general terms and is not very detailed. The main topics it briefly covers include: management of antenatal care; effects of drugs on the foetus and baby; maternal health problems; management of labour; neonatal withdrawal; postnatal management; postnatal planning meeting; prescribing drugs for pregnant drug misusers; and some suggested further reading. The information presented is essentially a general overview and does not over detail suggestions for a protocol.

Policy documents on improving the health of the general population make little or no reference to pregnant drug misusers or their offspring. For example, *Saving Lives: Our Healthier Nation* (DH 1999c) makes no reference; whilst *Towards a Healthier Scotland* (TSO 1999) states that initiatives to improve the health of children can be enhanced by offering families a co-ordinated programme of action, including

- Parental health, with emphasis on lifestyle, nutrition and avoiding substance misuse in the period prior to, during and after pregnancy;
- Children's nutrition, with a focus on breastfeeding, healthy diet and dental health; and
- Comprehensive screening, surveillance and immunisation programmes for maternal health, in line with national guidance and targets.

Although there has been a national (UK) Drug Strategy since the mid-1980s, until 2002 none of the documents setting out the drug strategies referred specifically to the special needs of female drug misusers (Home Office 1985; HMSO 1995; TSO 1998). However, the Revised Drug Strategy, issued late last year, recognises the fact that female problematic drug users access services less frequently than their male counterparts (HO 2002). When they do there are often shortcomings in childcare and transport facilities, women-only services, specific provision for minority ethnic women and services within the Criminal Justice System.

The recognition in UK official circles of the special needs of female drug misusers is part of a wider shift occurring in Europe since the early 1990s. Although there is no specific mention of pregnant drug misusers, the updated Strategy document does note that "research highlights the need for Government departments and the NTA [National Treatment Agency] to co-ordinate and develop an effective response to the needs of women" (HO 2002:55). The research alluded to here is that of Becker and Duffy (2002).

Klee *et al* provide a brief summary of the emergence of various guidelines for services working with drug-using parents, and the development of what they regard as the main models of care - (a) the drug liaison midwife; (b) multi-agency collaboration; and (c) advocacy (Klee *et al* 2002:289-294). They look at the pros and cons of these approaches.

Some treatment services provide training and support for child protection nurses and midwives. In other situations, dedicated midwives have been appointed to work with pregnant drug users to facilitate a seamless service between hospital and drug services. In some areas there are drug liaison midwives, who have both knowledge of drug use and midwifery. They often act as advocacy workers for pregnant drug users as well as providing specialist support.

Some areas have developed the post of consultant midwife in drug and alcohol dependency. The aims of such posts include (Becker and Duffy 2002):

- Improvement in short and long term outcomes for particularly vulnerable and socially-excluded groups through providing appropriate, accessible client-focused services;
- Provision of opportunities to develop strong leadership in midwifery, as advocated by *Making a difference* (DH 1999a);
- Build on existing innovative and evidence-based practices and lead on introducing fresh approaches.

In Manchester, for example, the consultant midwife

"leads the development of services for drug-using women and their partners. She works with the family planning services to provide sexual health and reproductive health provision and develops outreach services, working with other statutory and non-statutory services ... She also has a clinical leadership role, which includes direct client care and training and awareness-raising for professional colleagues" (Becker and Duffy 2002:37).

Policy guidelines were published by LGDF and SCODA in 1997 on inter-agency working. They recommended: (a) written policies and guidelines about the support provided to pregnant drug users and drug using parents; (b) wide dissemination of policies to specialist and generic agencies; (c) health and local authorities should have a shared strategy for developing and jointly commissioning services; and (d) children's and parents' needs should be separately identified in plans for drug using parents and their children. The

Lifeline Project has based a 4-page leaflet on these guidelines and other material (Lifeline Project 2002). The leaflet looks at risk factors, and then severally examines the issues and interventions and practice associated with (i) pregnancy, (ii) birth, (iii) postnatal and neonatal stages.

The National Treatment Agency published its *Models of care* in December 2002 in two versions: Part 1 is a summary for drug treatment commissioners and those responsible for its local implementation; Part 2 is a detailed reference document for drug treatment managers and providers, and those responsible for quality assurance and delivery at the local level. *Models of care* set out a national framework for the commissioning of treatment for adult drug misusers in England (NTA 2002b).

The reference document contains a special section on women drug users. There is a useful summary of the epidemiology of women drug users, including prevalence and the particular needs of this population - physiological and psychological responses and social factors. This latter section briefly considers some of the issues specifically relevant to pregnant users. A section is devoted to the evidence base on the following topics: service accessibility and service utilisation; barriers to service utilisation; and, briefly, professional guidance and legal framework. The last two substantive sections look at care pathways (involving collaboration and joint working by multiple agencies) and treatment processes/environment. Key aspects identified in the treatment environment comprise: consultation/partnership working; staff skill mix and qualifications; types of staff; and the elements that should be included in treatment provision. Some of the special issues for the adult female drug misusing population are dealt with in other parts of the document but are usefully cross-referenced. The aim of *Models of care* is to provide guidance rather than to set out national standards. It brings together - at a general level - much of the material relevant for those involved in providing services to women.

In February 2003, the Scottish Executive published *Getting our Priorities Right* (Scottish Executive 2003). This booklet contains good practice guidance aimed at those working with children and families affected by substance misuse, including drugs. An 8-page appendix covers issues relating to substance misuse in pregnancy.

As with other published guidance, it outlines the effects of certain drugs and alcohol on pregnancy. It then considers the assessment of pregnant women with substance misuse, stating in very clear terms "A new approach is needed to address risks and needs. As a first step this should start with assessing the needs of all new-born babies born to drug or alcohol misusing parents." The guidance goes into some detail as to the type of information that should be sought whenever female drug users come into contact with both health and non-health care agencies, with a view to flagging up the dangers of substance misuse during pregnancy. Similar advice is offered with regard to those providing antenatal care so as to identify foetuses at potential risk. Pre-birth case conferences are advocated to consider whether adequate provision has been made for the future care of the newborn.

A description is then given of a project (Vulnerable Infants Project) set up in 2001 to meet the needs of pregnant women with social problems including addiction problems. Joint midwifery and social work services provide liaison between maternity, paediatric, primary care, social and addiction services. The chief objective of the service is to provide support following discharge from hospital.

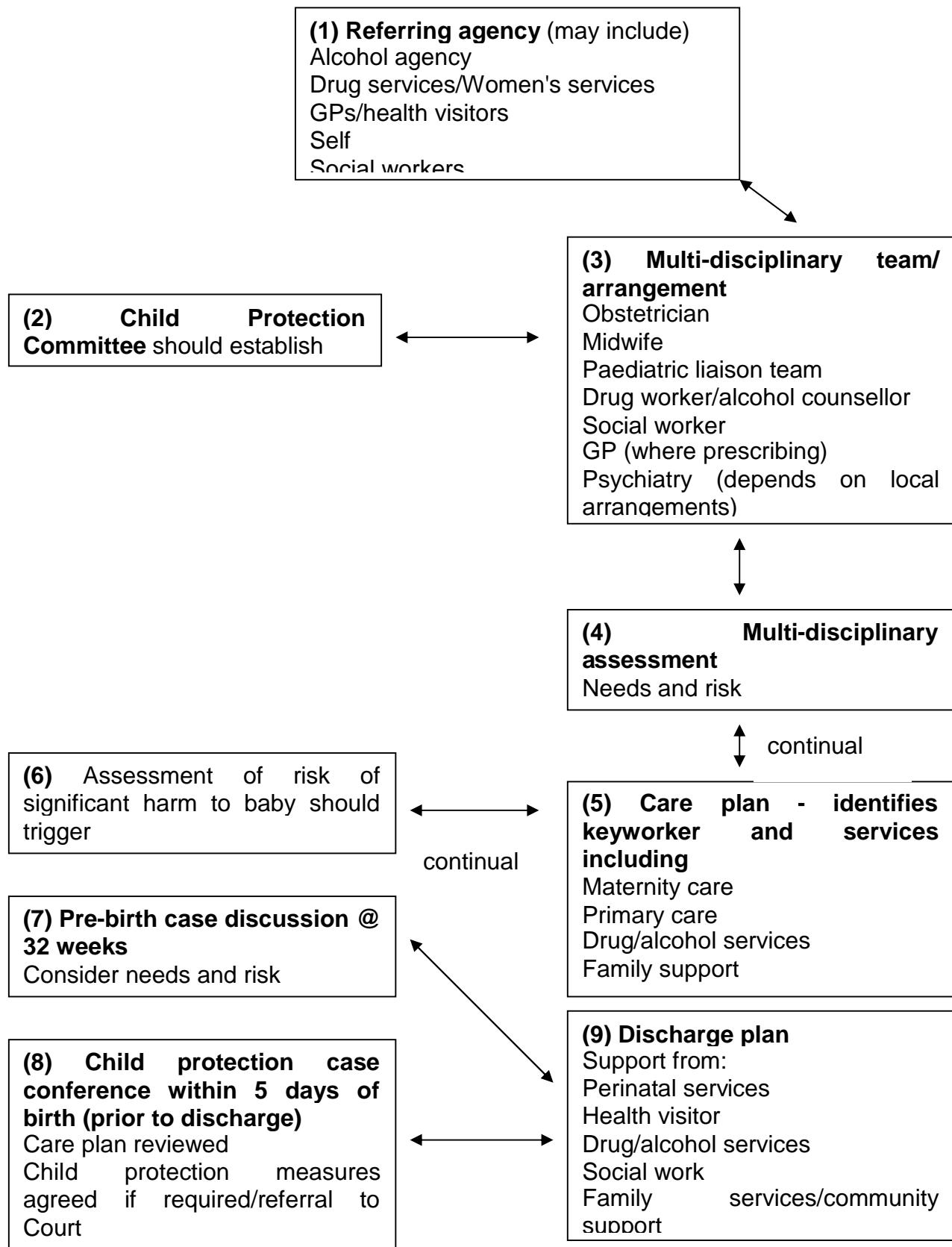
Broad principles underpinning good practice in maternity care were published in a Scottish Executive document in 2001 (Scottish Executive 2001). These principles are being incorporated into maternity care across Scotland, and modified as appropriate for populations with special needs or problems such as substance misuse. These principles are very similar to those propounded elsewhere by other agencies. The appendix concludes with a schematic description of how the various agencies working with pregnant substance misusers should inter-relate. This is replicated in Figure 11.1 below.

Midwifery and the nursing profession generally hold key positions in which they can prevent, reduce and eliminate the harm caused by substance misuse. A booklet aimed specifically at nurses, midwives and health visitors involved in working with substance using women and their children has been produced by the Association of Nurses in Substance Abuse (Frayne and Macrory 2002). It is “designed to offer information on health promotion and prevention around substance misuse in general: early identification of problematic substance misuse, and signposts offering information and advice on the development of collaborative clinical management plans involving the expectant parent(s) with problematic substance misuse and relevant health and social agencies” (Frayne and Macrory 2002:11).

This ANSA publication is not a set of guidelines but is a document providing guidance on various elements of nursing care: clinical, administration and management; education and training; and evaluation and research. It also provides information on special issues, contact addresses, references and recommended reading. There is a very good overview of the UK policy framework, a discussion on common assumptions and stereotypes, and an outline of theories and models that have been put forward to explain substance misuse. Then follows a chapter on the facts relating to drugs, the legal framework, etc. Guidance on good practice is the heart of the booklet. This section provides a wealth of information and common sense, with references to more detailed information.

In the absence of any published systematic standards, Grandey *et al* (2002) developed a set of 14 health care standards for pregnant drug misusers from a number of key documents (DH 1988; DH 1989; SCODA and LGDF 1997; DH 1999b; CEMD 2001; NTA 2002a). These can be summarised as: multi-agency policy; multidisciplinary care; specialist expertise; booking question; specific antenatal protocol; antenatal planning meeting; involvement of the mother; antenatal follow-up efforts; specific labour protocol; special care facilities; special care not routine; postnatal planning meeting; child protection meeting not routine; and audit.

Figure 11.1. Scottish Executive schema for working with pregnant drug misusers (adapted from *Getting our Priorities Right*, Scottish Executive, 2003)



Some areas have already instituted regular audits. For example, in South Yorkshire one NHS Trust has conducted four audits since 1997 in order to continually monitor the effectiveness of changes made in service provision (Martin 2002).

Evaluation and future needs

The review by Becker and Duffy on service-level responses to engagement and retention of women drug users made seven recommendations. Most of these suggestions echo those of previous commentators; however, they do bear reiteration.

1. That those working with drug users review how women currently gain access to their services and consider whether they could engage more women clients by altering existing practice and or through new forms of activity, which could include outreach work, providing women-only space, support for drug users' children and assisting travel to services.
2. That those working with drug users review the ways in which they currently engage and retain women drug users and consider whether they could improve the effectiveness of their interventions by adopting a *holistic, needs-led* and *client-centred* approach.
3. That managers of drug services explore ways in which they can facilitate better working with women drug users through the development of their staff.
4. That those working in drug services and other agencies (social workers, GPs, consultants, midwives and GU staff) explore ways to improve the effectiveness of their inter-agency working to ensure the delivery of appropriate health and social services to women drug users including sexual health, pregnancy, childcare and parenting.
5. That those involved with the commissioning of drug services for women drug users investigate ways to ensure that appropriate services are developed in their local areas and are available to drug-misusing women throughout the UK. Special attention needs to be given to developing services that meet the needs of ethnic minority women.
6. That the NTA [National Treatment Agency] set up a national gender-specific advisory group with regional representation to inform the development of services for women drug users.
7. That research is commissioned to address the gaps in the evidence-base with the overall aim to establish effective ways of working with women drug users, which includes
 - establishing whether or not women are under-represented in drug treatment services
 - and the effectiveness of strategies aimed at increasing engagement and retention.

The various guidelines published have no legal standing. However, they can and should play an important role in improving the quality of services and clinical governance. They provide a framework within which maternity services for drug misusers and services for their offspring can be evaluated.

Grandey *et al* (2002) point out that the few available guidelines are not always followed, possibly because they have not been systematically collated. They argue that compliance with agreed standards should not be optional.

Although different models for providing services can be designed, it is not possible to establish what is good practice without outcome data and an evidence base. Grandey *et al* (2002) recommend that the Department of Health should consider

1. Developing a core dataset of information about pregnant drug misusers, ensuring that maternity and drug misuse-related definitions used in the core dataset are unambiguous so that they can be used consistently;
2. Endorsing the need for standards for maternity services for pregnant drug misusers, and ensuring their development;
3. Establishing performance management arrangements for these standards.

Much has been achieved in terms of recognising the special needs of pregnant drug misusers and drug-using mothers within the UK in recent years, but as the quote from Klee *et al* (2002) in the introduction points out, a lot still remains to be done. There is still an information black hole with regard to the true extent and nature of the population of pregnant drug misusers. Action needs to be focussed here (as well as on access to and delivery of services) so that policies and guidance issued are based on solid and reliable evidence.

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Chapter 12**Maternal health and drug abuse in the United Kingdom****Summary**

This chapter describes three case studies from different parts of the United Kingdom. In the first section the initiative taken by a statutory drug treatment service in northeast Essex, England is looked at to help us understand the importance of partnership and effective therapeutic intervention within different disciplines involved. The statistics of four years of such a service provide the justification for the above-mentioned statement.

The second section briefly describes the relationship between a Drug Dependence Unit within a teaching hospital in southwest London and the local health and social care systems in the area. Some data are given on pregnant drug users accessing treatment services provided by the Unit.

Finally, the third section examines what happens in Fife, situated in the southeast of Scotland. Here, midwives and drug workers from the addiction services have worked together to develop a successful multi-disciplinary approach to care for and support substance misusers throughout pregnancy and the postnatal period. Admissions to the Neonatal Unit of babies with Neonatal Abstinence Syndrome have been reduced significantly by supporting and educating women antenatally. Subsequent breakdown of the family unit has also been reduced by early intervention by social services to support the family before a crisis occurs. Ongoing support is offered by the multi-disciplinary team who are known to the woman.

(A) Essex, England

L Waldron and A Baldacchino

Introduction

Essex is a large and demographically diverse county with a total population of more than 1.3 million living within its geographical boundaries in 2001. The northeast of the county is an area with both urban and rural qualities with an estimated population of 325,000. It is known as the watershed of London even though its social cultural context is very similar to other East Anglian counties. The proximity to London has a major influence with many of the resident workforce commuting either by car or train to the Capital daily.

There are two Primary Care Trusts (PCTs) and one Primary Care Group (PCG) in northeast Essex which service the towns of Colchester and surrounding areas, Tendring district i.e. Clacton and Harwich and some towns

and villages in the Braintree area. Colchester PCT, set up in 2001, serves a population of 169,000 through 87 GPs in 23 practices. Tendring PCT, set up in 2000, provides services to a population of 135,000 in a largely rural area and Clacton and Harwich (from the Essex Rivers NHS Trust). The Witham, Braintree and Halstead PCG, established in 1999, has boundaries which are co-terminous with that of Braintree District Council. The PCG serves a population of 139,000 (40,000 in Braintree and 30,000 in Witham) through 72 GPs in 19 practices.

Colchester itself is the main centre of population in northeast Essex (currently about 156,000). It is a garrison town and is home to the University of Essex. It also possesses one of the UK's largest post-war council housing estates (cited in Street Drugs, A Tyler). One-quarter (25%) of the population is under 20, compared to one-fifth (21.4%) in Tendring. The number of homeless people in Colchester has increased by 50% since 1991 and resident-based unemployment rates show that unemployment is consistently above the county average in the Tendring area (ONS 1999).

A Government white paper published in 1999 "Our Healthier Nation" (DH 1999b) identified teenage conception as an area that should be targeted for improvement, linking it particularly with the need to address health inequalities with associated social and economic issues.

Recent information shows parts of north Essex as having amongst the highest rates of teenage conception in the United Kingdom. The national target is 4.8 (rate per 1000). However Colchester has a rate of 5.8 and Tendring 8.4 (ONS 1999). Colchester is where the North East Essex Drug and Alcohol Service is based. The Community Drug Addiction Team (CDAT) was established in April 1986. It was created to develop and maintain an appropriate service for those people living within the North East Essex Health Authority affected by drug misuse and related problems. Money was made available from the Government initially for preventing HIV and solvent abuse. The formation of the North East Essex Drug and Alcohol Service (NEEDAS) was in 1987 and the staff consisted of 1 Community Psychiatric Nurse, 1 Clinical Psychologist and 1 administration worker. NEEDAS has expanded over the past 14 years to a total of 28 staff who provide various services i.e. counselling, Brief Contact Service, group work, drug and alcohol detoxification (inpatient and community), sexual health services, educational programmes, needle and syringe exchange and disposal and community care assessments for residential rehabilitation. A breakdown of the staffing complement is given in Figure 12.1.

Figure 12.1. Staff profile of NEEDAS**Staff Profile**

2 Managers, 1 Health and 1 Social Services

3 Doctors

7 Drug Workers - background nursing, Occupational Therapists and Social Workers

7 Alcohol Workers – background nursing, Occupational Therapists and Social Workers

1 Needle/Syringe Co-ordinator

1 Educational Specialist

1 GP/Pregnancy Liaison Nurse

5 Administration staff

Health and social care system in northeast Essex

In 1997 a GP Liaison Nurse was appointed to the team to work alongside GPs and primary health care staff. The post was originally funded by Essex Drug Action Team and subsequently by North East Essex Mental Health NHS Trust. What became apparent to the GP Liaison Nurse is that there appeared to be no specialist service for pregnant drug/alcohol users. There were no guidelines or protocols in place in view of guiding other tertiary services in helping manage such complex cases. As there was more evidence of pregnant drug users through referrals to NEEDAS a separate pilot service was set up. This service was incorporated within NEEDAS as part of its harm minimisation policy for good working practice. This is also in line with the Department of Health guidelines which encourages shared care between different specialities within the Health and Social Services (DH 1999a). This was opportune as mentioned previously since the catchment area at NEEDAS has a high teenage pregnancy rate.

Meetings were initiated by the GP Liaison Nurse. All health and social services (health, housing, social services, probation) as well as professional team managers involved were invited to discuss how such a new service for North East Essex could become a tangible and practical scheme. All agencies and organisations agreed that the service was essential and that the Liaison Nurse within NEEDAS would take a lead role. It was apparent that education support and training in substance misuse should be provided to all health and social service professionals involved in the care of pregnant drug users.

An orientation visit was initially arranged to drug agencies which already had pregnancy liaison schemes in operation, e.g. the Beresford Project in London, the Bures Centre in Norwich and Liverpool Women's Hospital. The above

mentioned models were adopted and customised to take into account northeast Essex needs and health priorities.

The protocol which is in place in northeast Essex aims to

- Encourage the pregnant client and, if appropriate, her partner to engage in services as soon as a diagnosis of pregnancy is made.
- To provide, following assessment, a flexible negotiated service that is client friendly.
- To establish a comprehensive care plan to meet the needs of the pregnant client and her unborn.
- To offer other relevant information about HIV, hepatitis B and C, and STDs.
- To make sure communication exists between all professionals, and child protection issues are identified and addressed.

Informed consent is required to share clients' information, however it is always stressed that if there is a risk of significant harm then information will be shared with all agencies and organisations concerned. During an assessment the client is informed of all options available, information, advice and support is offered and the case manager for the client will be the GP Liaison Nurse. Referrals are accepted from all agencies and will be responded to within 5 working days. The assessment procedure would include obtaining a comprehensive history and conducting a medical, psychiatric and social assessment that is in accordance with the Care Programme Approach. A urinalysis for full drug screening should be obtained and the Liaison Nurse will encourage attendance at appointments at the obstetric clinics, Social Services, housing, probation, child protection conferences and GPs. In accordance with the current guidelines, a shared care programme will be organised between the GP, midwife and Liaison Nurse or if the case is complicated the pregnant user is referred to the weekly NEEDAS medical and psychiatric clinic.

The treatment at NEEDAS for pregnant women using heroin is a methadone programme. The aims are to:

- To stabilise in the first trimester.
- To reduce by 2.5 - 5 mg weekly, or fortnightly or monthly in the second trimester.
- To continue slow reduction or to maintain in the last trimester.

Key worker appointments are offered for these clients on a weekly basis. However they can contact the key worker at any time during working hours. Non-opiate pregnant drug users are also offered regular appointments. For users of amphetamines no substitute medication is given and for benzodiazepine users a slow reduction is recommended.

It is good working practice to call professional meetings at the earliest stage possible and thereafter at 6-12 week intervals and child protection issues must be assessed. A case conference will then decide if a protection plan is needed. After delivery a discharge planning meeting is essential. Here

relevant professionals can have discussions with the parent(s) to identify problems, set goals and plan support networks (DH 1999a).

Data on pregnant drug users in treatment service

During the period 1997 to 2001 the number of female clients in treatment was 617. The number of pregnancies was 51; there were 3 abortions and 38 live births. The number of pregnant patients in treatment for the first time was 35. It was difficult to access information about HIV, hepatitis B & C virus status as it is confidential to Genitourinary Medical Services, however the following numbers of clients already knew their status and readily divulged it: HIV 0, HBV 2, and HCV 6.

It appeared that there was a difference in opinion between health professional on the issues of breast-feeding. Some midwives promoted breast-feeding, whilst others along with some GPs advised against it. NEEDAS follows the guidelines published by SCODA (1997). Within NEEDAS breast-feeding is recommended for patients who have undertaken methadone treatment particularly if they have completed their programme or are on small amounts. The exceptions are if she is HIV+ because of the risk of HIV transfer when breastfeeding, hepatitis C+ because of the uncertainty around hepatitis C transmission and if the mother has been using benzodiazepines because of the long lasting effects. Only 3 mothers breast-fed.

Prenatal/neonatal abnormalities detected included 1 baby with a parvo infection terminated at 20 weeks and 1 baby born with a cleft palate. The majority of the babies were small for their dates. One mother miscarried at 22 weeks and another at 7 weeks.

Nine babies were removed from their parents after delivery and 2 of these were returned to their biological parents after 3-6 months. Thirty babies were born with neonatal opiate abstinence syndrome and they were nursed at the Small Baby Care Unit. The babies were put on a withdrawal chart and observed every 4 hours or when necessary. There are 10 identifying signs of withdrawal. If the baby scores above 5 then medical treatment is required. Morphine sulphate is administered and the dose adjusted according to the severity of symptoms.

Problems

The following problems have been highlighted:

- Professionals not sharing information.
- Negative attitudes from other health professionals and lack of knowledge and expertise.
- Fear of Social Service involvement
- Clients not aware of the dangers of substance misuse and pregnancy.

As a result it is suggested that continuing educational training workshops for the agencies involved needs to be organised in view of changing people's attitudes towards pregnant drug users. Established protocols and guidelines to empower agencies to work together including leaflets and posters have been distributed to GP practices, health centres, hospital libraries, housing departments and other agencies. The clinicians within the hospital and genito-urinary primary care environment have a flow chart to refer to and a list of telephone help lines to consult with.

The next stages in increasing the knowledge base are to

- 1 Encourage GPs to attend training courses organised specifically for primary care staff within the NEEDAS environment.
- 2 A working party to help the GP Liaison Nurse compile evidence based material on the subject.
- 3 Organise case conferences and workshops about case histories and/or recent research findings as mentioned in the Health Improvement Programme for North Essex 2000 – 2003 (North Essex Health Authority 2000). In order to ensure a high quality of maternity services, Hospital, Social Services, Trust, Health Authority Primary Care Groups and users must work together.
- 4 To continue encouraging the need to work jointly is paramount and a multi-agency approach so as to improve the level of care for pregnant drug users is important for a safe and desirable working practice (DH 1999a).

(B) Southwest London, England

J Tregenza

Introduction

The Centre is a Drug Dependence Unit sited within a major teaching hospital in southwest London. It is a statutory service under the direction of a Consultant Psychiatrist, with junior doctors in training, psychiatric nurses, and dedicated substance misuse social workers. It is a specialist division of the NHS Mental Health Services for the locality, serving three London Boroughs. There is access to specialist in-patient facilities for substance misusers at the National In-Patient Drug Treatment and Research Unit sited within the local Psychiatric Hospital nearby. The service also links with many other specialist addiction units in and around London. Services are free to patients under National Health Service arrangements.

The catchment area for the Centre comprises one Inner London and two Outer London Boroughs. The majority of patients who access the Centre are long term residents and are registered with a Primary Care Physician. The average active caseload is 100-120 patients, with annual attendances of 5-6000, comprising 5-600 individuals.

Health and social care system in southwest London

Antenatal, obstetric and neonatal services are provided at the teaching general hospital, and at another general hospital located within the Centre's catchment area. There are formalised protocols between the Centre, the general hospitals and social services concerning inter-agency referral of pregnant drug users, and for planning the care of the pregnant woman, and for the unborn child. There are two case scenarios where the pregnant drug user can access needed services.

- If the woman is already in treatment at the Centre, she will be referred to the antenatal clinic of her choice. (This is usually determined by her area of residence, i.e. to the nearest general hospital.) She will automatically be referred to the dedicated substance misuse social worker, who is a member of the Centre's multidisciplinary team.
- Where current or recent history of substance use is revealed during antenatal booking, the midwife will make a referral to the Centre's Liaison Clinic, also to the Children's Social Worker attached to the obstetric services, and to the neonatal services. Women who are referred to the Centre's Liaison Clinic are assessed and taken on to the Centre's caseload if treatment for dependence or problematic drug misuse is required.

An initial Inter-agency Pre-Birth Planning Meeting is convened as soon as practicable, with the aim of developing a co-ordinated care plan to address maternal healthcare needs, social needs, and the anticipated needs of the neonate. The initial meeting may recommend a further Pre-Birth Meeting or defer the meeting again until after the confinement. Planning Meetings are not formal Child Protection Conferences, but may recommend that one is convened if Childcare concerns are identified.

The pregnant drug user is fully informed of the procedures and is invited to attend all planning meetings. Her husband or partner is also invited, and she may choose to invite a family member or friend. Other significant professionals involved with the pregnant drug user, but not directly involved with her drug treatment or obstetric care (such as a probation officer), may also be invited with her consent.

Treatment at the Centre for pregnant women may be as an out-patient or in-patient. They are considered as priority for engagement into treatment at the

Centre, and for admission to the National In-Patient Unit if indicated due to unstable or chaotic drug use, overriding the routine waiting list.

Data on pregnant users in treatment services

The average percentage of female patients out of all patients in treatment is about 30%. The average annual rate of births amongst patients in treatment is 8-12 per year. There are no figures for the number of spontaneous abortions. About one case per year is referred by the Centre for therapeutic abortion.

The Centre provides testing for HIV, Hepatitis C (HCV) and Hepatitis B (HBV) after counselling for all patients. Testing is voluntary, the overall rates of HIV and HBV are low, but 60-70% of intravenous drug abusers are HCV Positive. In 1999 no pregnant patients at the Centre were HIV or HBV Positive.

The treatment recommended for pregnant women dependent on heroin is initially stabilisation on oral methadone, and cessation of illicit drug use. Alternative treatment such as Lofexidine detoxification is not offered to pregnant patients. The majority of pregnant women have requested either methadone detoxification or dose reduction. The Centre advises patients to defer detoxification or reduction until the second trimester, and advises against abrupt or rapid withdrawal. The rate of dose reduction or detoxification is individually determined according to the motivation and well being of the patient, and the patient is advised to report indications of foetal withdrawal (increased movement) so that dose reduction can slowed.

The initial stabilising dose of methadone is individually determined according to the severity of the patient's heroin dependence. At this stage there is no upper or lower limit, but the average stabilising dose for all patients is 30-60 mg methadone daily. Pregnant women who are unable to detoxify from methadone are advised to reduce to about 30 mg daily or less if possible. Breastfeeding is not contraindicated for patients who have undertaken methadone treatment where the dose is low, or the patient is completing methadone withdrawal after birth.

Data have not been collected on congenital abnormalities present in babies of pregnant drug users at the Centre. However the author is not aware of any cases in 1999-2000.

(C) Fife, Scotland

E Bate and J Leggate

Introduction

The population of Scotland according to the 2001 Census was 5,064,200. Fife is in the southeast of Scotland with its coastline surrounded by the River Tay and the Firth of Forth. It had an overall population of 349,770 in 2001 (Fife Council 1998) and is surrounded by the three major cities of Edinburgh, Stirling and Dundee.

There is urban-rural segregation in Fife; 93.9% of the population were living in settlements in 2000. East Fife is mainly rural with fishing villages and has 73,000 inhabitants compared to central Fife which has a population of 148,000. The northeast of Fife is home to St. Andrew's University within the affluent town of St. Andrews. Central Fife consists of the larger towns of Glenrothes (population 42,130 in 2000) and Kirkcaldy (population 49,220 in 2000). When home ownership is compared between the two regions the North East has 64% compared to Kirkcaldy 50% with home ownership. The three Local Health Care Co-operatives in Fife are Glenrothes, Kirkcaldy and Levenmouth, and Dunfermline.

In both 1999 and 2000 the Fife rate for pregnancies amongst 13-15 year olds was slightly lower than the Scottish average (about 8 pregnancies per 1,000 population), but rose to 9.2 in 2001 against a national average of 7.6. Amongst 16-19 year olds there was a different story: in 2000, the rate for Fife was about 77 per 1,000 population compared to the Scottish average of about 69. The respective levels in 2001 were 78.7 and 70.6 (ISD 2002 and 2003a). The teenage pregnancy rate in North East Fife is almost 30% below the Scottish average, whilst the rate in Kirkcaldy is almost 4% above the national average (PHIS and OPHS 2001).

In 2000 there were 3,520 births to Fife residents aged 15-44, representing a birth rate of 48.8 per 1,000 women, compared to 48.6 for Scotland. There has been a 5% increase in the number of babies born to women under 20 years old; 5.3% of babies born in 2000/1 to all women were less than 2500g. Perinatal mortality is low in Fife and Scotland as a whole: in 2000 there were 8.8 per 1,000 total births in Fife and 8.4 in Scotland (Fife NHS Board 2002).

Fife's average unemployment rate in 2001 was considerably higher at 5.9% compared to the Scottish (4.3%) and UK (3.3%) averages. Within the county there is much variation, ranging from over 16% in Buckhaven/Macduff in the south of the region to less than one percent in St Andrew's West, in the northeast of the area.

It is estimated that 22,805 people in Scotland inject illicit or prescribed drugs (Hay *et al* 2001). A rate of 392 per 100,000 population in Scotland inject drugs compared with 173 per 100,000 for the rest of the United Kingdom (Scottish

Office 1994). There were an estimated 2,870 problem drug users (defined as using opiates or benzodiazepines) aged 15-54 in Fife in 2000 (Hay and Gannon 2001). Prevalence rates were calculated to be 2.6% in 15-24 year olds; 2.4% in 25-34 year olds, and 0.6% in the 35-54 age group. The number of estimated drug injectors in the county was 866 individuals (0.5% of the total population aged 15-54), of whom 29% could be expected to be hepatitis C positive. During 2000/1 598 new clients (27% female) were notified from Fife to the Scottish Drug Misuse Database. Of these new clients, 31% were heroin users and a further 31% injecting heroin users. The Community Drug Team received 136 new referrals from April until December 1999 and recorded 71.9% of these drug users using heroin, of whom 59.8% were intravenous drug users. Areas of Fife with high levels of injecting include Leven, Kirkcaldy, Glenrothes, Cowdenbeath/Kelty, Lochgelly and Cupar.

It has been reported that there is an increase in the number of women of child-bearing age who are taking drugs. One of the key targets in the document 'Towards a Healthier Scotland' (Scottish Office 1999) is to reduce the rate of reported heroin use in known drug users under 20 years by the year 2010. Of the 1984 new female clients notified to the Scottish Drug Misuse Database from the Fife area in 2001/2, 105 were aged 15-24, and a further 59 were 25-34. The mean age was 23 and the eldest 45. The overall rate was 121/100,000 population for Fife compared to the national average of 146. Five percent of those presenting for treatment in Fife in 2001/2 did so because of issues relating to pregnancy, compared to the national average of 3%. This figure was the third highest of all 13 Scottish Health Boards (ISD 2003b).

Women who take drugs during pregnancy often access antenatal services after 16 weeks gestation when the foetus is already formed (Siney *et al* 1995). This poses many difficulties, such as: important advice not being given about the effects of drugs on the unborn child, inadequate planning of appropriate care in pregnancy and labour, and lack of monitoring for the unborn child (Siney 1998). Many babies born to drug using mothers are admitted to a special care unit or undergo surgery that places financial pressure on the National Health Service. One of the commonest reasons for children to be taken into Local Authority Care is as a consequence of child protection issues such as neglect by drug using parents.

The Scottish Executive has published figures on how many babies have been born with drug dependence in each Health Board. The number of discharges in Fife recording drug misuse rose from 6 in 1997/8 to 15 1999/2000 but fell back to 8 in 2000/1. The number of maternities in Fife where drug misuse was recorded rose from 5 in 1997/8 to 10 in 1999/2000, before falling to 9 in 200/1, an increase in the rate per 1,000 from 0.1 to 0.3. During the same period, the average rate for Scotland rose from 2.4 to 4.4 (ISD 2003). The number of discharges fell from 533 in 1998/9 to 489 in 2000/1 which shows that even though there were less births in 2000/1 the number of drug users is on the increase (ISD 2003). The rate per 1,000 discharges in Fife rose from 11.4 in 1997/8 to 29.6 in 1999/2000 before falling to 16.4 in 2000/1. These rates

were just a little lower than the Scottish average in 1997/8 and 2000/1 but were considerably above the national average in the intervening years.

However the number of reported women who use drugs during pregnancy is inaccurate and under-recorded as figures show there have been 37 women discharged with a drug problem from Forth Park Maternity Hospital alone (Table 12.1). These vulnerable women who fall pregnant find it difficult to admit they have a problem for fear of becoming stigmatised by health and social workers.

Programmes for multi-disciplinary working have been around in the United Kingdom since the 1980s and it is paramount that liaison takes place among workers of clients who misuse drugs and outreach services are made available for pregnant drug users. The need for a inter-agency approach is very important when dealing with pregnant women who use drugs as it can provide continuity of care, establish trusting relationships and improve the quality of health care (Bharj 1999).

There is a specialised unit for pregnant drug users at Glasgow's Royal Maternity Hospital at Rottenrow in Glasgow. The head of the Unit is a consultant obstetrician and gynaecologist. Babies have skin-to-skin contact with their mothers immediately after birth to encourage bonding. Forth Park Maternity Hospital also encourages skin-to-skin contact with mothers and their babies. Mothers are encouraged to stay with their babies at all times and the babies 'room in' with their mother. No referrals are made to the special care unit unless the baby is very unstable. The unit tests women for hepatitis B, hepatitis C and HIV and has a 90% acceptance rate for the test. The Royal Maternity Hospital in Glasgow aim to stabilise all of their pregnant drug users on methadone only and withdraw from all of the other drugs during pregnancy. The unit at Rottenrow encourages breastfeeding whilst on a methadone regime or if hepatitis C positive but discourages those women who are HIV positive from breastfeeding.

Health and social care systems in Fife

A midwife with an interest in women who use drugs during pregnancy recognised the need for a specialised service for this increasing group of vulnerable women. The specialist role of the Drug Liaison Midwife was established in Fife in 1999 and she is currently based at Forth Park Maternity Hospital, Kirkcaldy. All women who admit to drug use during pregnancy are referred from the antenatal clinic to the Drug Liaison Midwife who offers a home visit to discuss their addiction and the effect it may have on their pregnancy. The client is referred to the Fife NHS Addiction Services Community Drugs Team if she does not already have a drug worker and is given precedence over other referrals. The allocated drug worker will offer to work with the pregnant user's partner, support the family where necessary, provide a needle exchange service, discuss sexual health and support the extended family. Ante-natal counselling is provided by both the drug worker and the specialist midwife. Although the system worked well upon evaluation

it was discovered that there was a lack of inter-professional communication. A working group was established with the following aims:

- To provide a flexible and comprehensive service that empowers women and offers support, information and promotes drug control/reduction strategies during and after pregnancy;
- To provide information about HIV, hepatitis B and hepatitis C in pregnancy;
- To provide a non-judgemental, supportive service which fosters trust and facilitates openness and promotes health education;
- To establish a consistent and equitable plan of care for the client and her baby throughout pregnancy and beyond; and
- To ensure effective communication exists between the client and all professionals involved in the care of the mother and baby and identify any child protection issues.

A multi-disciplinary group of the Drug Liaison Midwife, health visitors, the Child Protection Nurse Advisor, drug workers, social workers and drug using mothers formed a working group and devised a protocol for antenatal drug users. The areas of concern were: an increase in the incidence of drug use during pregnancy in Fife, the cost of admitting to and treating babies in the Neonatal Unit and the emergency involvement of social work intervention in the postnatal period. The cost of treating 11 babies in the Neonatal Unit between 1999-2000 was £78,000 (about € 125,000). The working group produced an integrated Care Pathway incorporating a client's mandate, a protocol for ante-natal drug users, a Social Work Department referral letter, a discharge protocol, an advance warning notice for the labour ward and Neonatal Unit, a pregnancy information leaflet and a neonatal information leaflet. The leaflet describes how to prepare for pregnancy, the effect drugs will have on the pregnancy and advice on where to obtain confidential help and advice. The leaflet designed for after the baby is born is a guide to baby withdrawal symptoms for drug using mothers.

The Drug Liaison Care Pathway requires consent and co-operation of the client to ensure a package of care is formulated to meet the needs of the individual. The documentation enables all professionals to be contacted by the Drug Liaison Midwife with the client's consent and therefore aims to provide continuity of care. Since the Care Pathway was introduced in January 2000 no client has refused to sign the mandate which is continually being evaluated by the working group. This system provides opportunities to link into the Housing Department and the Benefits Agency which are areas of care often missed in antenatal care. The Drug Liaison Midwife visits the mother and baby up to one month after the birth with the support of the health visitor and drug worker. A review meeting is held one month after the birth with the mother, the Drug Liaison Midwife, the drug worker, the health visitor and the General Practitioner. Negative staff attitudes can make drug dependent women who already have low self-esteem feel anxious and guilty (Ettorre 1992; Lewis *et al* 1995). It may be due to a lack of knowledge and skills that professionals are ill-equipped to deal with this vulnerable group of women. Forth Park Maternity Hospital now operates a system where pregnant drug

users are introduced to the staff they will be in contact with during the birth of their baby. The Drug Liaison Midwife operates training sessions for the staff at Forth Park Maternity Hospital and community nursing staff to raise their awareness of treating drug users as individuals.

A protocol or flow chart for antenatal drug users was formulated in February 2000 and has since been used by all professionals involved in the care of a pregnant drug user. It is an easily understandable protocol to enable all women to receive the appropriate support during pregnancy. The Social Work referral letter has not yet been used. This could be indicative of the early involvement of the Drug Liaison Midwife and inter-agency communication in enabling and empowering women to stabilise and control their drug use during pregnancy. If a referral is necessary it would follow the 34 week review meeting and allow enough time for the client to get to know their social worker before the birth of the baby.

The Drug Liaison Midwife received 63 referrals of pregnant drug users in the first year the care pathway was introduced from antenatal staff and of these 43 had delivered. Of this group 2 women had not received antenatal care as they failed to register their pregnancy and 22 women had used a combination of drugs with records showing they had more complications pre- and post-delivery. The problems included: 2 women had pre-term labour, one recorded foetal abnormality, one neonatal death and one maternal morbidity where a mother suffered from a cardiovascular accident on her fifth postnatal day. Other problems included: 8 babies were placed on the Child Protection Register (2 women had older children on the Child Protection Register) and Oromorph was administered to 8 babies. Most of the women were hepatitis C positive but there is no policy at Forth Park Maternity Hospital at present to treat these patients.

Nursing staff in the Neonatal Unit have noticed a reduction in the number of babies admitted to special care baby unit and in the length of stay in the unit since the Pregnancy Drug Liaison Care Pathway was implemented. Table 12.1 shows a reduction in the number of babies admitted to the Neonatal Unit and in requiring treatment that could be indicative of the successful implementation of the Pregnancy Drug Liaison Care Pathway. Table 12.2 gives information on the mothers reported on in this chapter.

Table 12.1. Data on pregnancies collected since the multidisciplinary pathway was introduced at Forth Park Maternity Hospital

Events	1999-2000	2000-2001
Babies born to drug using mothers	43	37
Mothers still using drugs at term	18	17
Babies admitted to Neonatal Unit	11	5
Referrals to Social Services	8	5
Babies requiring treatment	8	4

Table 12.2. Pregnant drug users attending Forth Park Maternity Hospital, 1999/2000 and 2000/1

Variable	1999-2000	2000-2001
Primigravida	6	9
Parous	16	10
Age range (years)	18-31	17-41
Average age (years)	23.40	22.37

Forth Park Maternity Hospital encourages pregnant drug users to access mainstream antenatal services. It is argued that if pregnant drug users are to attend specialised maternity services for their addiction they may fail to disclose their problem for fear of being treated differently (Siney 1998). The need for child protection conferences may be reduced if women are encouraged to use mainstream maternity services where they can access health visitors and social services (Siney 1998). Many young women who use drugs during pregnancy do not tell their family of the problem for fear of becoming ostracised, so a specialised maternity unit would not be ideal. Others argue that there are a lack of mother and baby units for the treatment and rehabilitation of women heroin drug users in Great Britain and they are not dealt with adequately in mixed settings (Ettorre 1992). A programme in Detroit, USA, for pregnant heroin drug users has been successful in providing different treatment options for women. It provides a specialised treatment plan for severely addicted women and it has been suggested this should be available for women all over the world (Ettorre 1992).

All women delivering in Fife are screened for Hepatitis B and are offered HIV testing during the antenatal period. There is no policy at present on hepatitis C testing at Forth Park Maternity Hospital but mothers can be tested if they wish. There is a high incidence of hepatitis C among drug users in Fife. Breast-feeding is discouraged at Forth Park Maternity Hospital in women who are still using heroin or who are taking over 20 ml of methadone at term. The

hospital also discourages mothers who are HIV positive from breastfeeding however no woman has tested positive for HIV to date. Only one mother in the past two years has breastfed. When a drug user attends Forth Park Maternity Hospital and they are using heroin, methadone will be prescribed following discussion with a GP and their drug worker. This can lead to difficulties, as a GP will not always agree to prescribe methadone when a client is discharged home.

Conclusions

A health visitor in Fife is currently researching drug misuse in pregnancy as the Fife Child Health Forum emphasised the need to assess the needs of children born to drug misusing mothers. It is important for women to have support during pregnancy to ensure a healthy child and prevent medical complications after childbirth (Fife Health Board 2000). The aim of the qualitative study is to undertake a needs assessment of the health requirements of women in Fife who use drugs during pregnancy and the subsequent health and social impact on their children up to school age. Women who have used drugs in pregnancy will be interviewed to ascertain their views on accessing healthcare in pregnancy, childbirth and the early years of parenting. Any gaps in service provision should be highlighted from the study. One of the recommendations arising from the study so far includes the need for specialised support for years after the baby is born. Another suggestion is to have immediate access to a drug worker at a specialised centre whenever they feel tempted to take drugs.

A study on coping behaviours in substance and non-substance using mothers demonstrated high levels of stress, parent-child dysfunctional interaction and difficult child and parental distress among those women using drugs (Kelley 1998). The study highlighted the importance of providing support with parenting skills and substance and parenting groups for drug using mothers. At the time of writing, a parenting group for drug using mothers had just been established in Glenrothes and it will be run as a 6-week pilot project. Parents and children are taken on transport to a community centre once a week where lunch will be provided for everyone and workshops are run every week covering topics such as aromatherapy, beauty products, hair-care etc. The children are looked after in a crèche and mothers are given the opportunity to ask the drug worker, social worker or health visitor present any queries they may have. If the scheme is successful it will be run again in the future. At present there are no other groups being held in Fife for mothers who are drug users. It is also imperative to act upon any suggestions that may arise through the interviews currently being carried out with drug users in taking health care forward for pregnant drug users both pre- and post-natally. Continuous training for health staff is imperative to alleviate any negative attitudes that may exist and jeopardise the opportunity of treating pregnant drug users early on in pregnancy.

To ensure that pregnant drug users' health and social needs will be met in Fife it is important for inter-agency working between health and social workers

to continue. There are no day programmes for drug users in Fife if they encounter difficulties and drug workers have commented that Fife is behind other areas in the care it provides for drug users.

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Part III

Maternal health and drug abuse

Chapter 13 From reality to a dream?

Reflections on an *ideal* model treatment for pregnant drug users

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Summary

The authors present some reflections about a possible model of treating pregnant drug users. This model is based on a multidisciplinary approach with an active community network. The relationship between professionals and pregnant woman, the special needs of these women and their children are also discussed. The different areas of a bio-psycho-social approach are presented, enhancing the importance of pre- and post-natal attendance.

Introduction

"Drug addiction is not a sign of infertility. It is frequent for the pregnancy to be diagnosed late. The amenorrhoea that is frequent in female drug users facilitates the denial, and this is only broken before irreducible evidence is provided. And when this late stage is reached the harm is already done, and the pregnant drug user has no incentive to stop. The abstinence syndrome is even more dangerous for the child. The rationalisation justifies the continuation of drug consumption. With all this there is the lack of social support; the inability to establish a routine that caters to the woman's needs and the needs of the baby. What is the cause and what is the consequence?"

(Flores 1997)

In recent years the number of female drug users has increased, as well as the number of pregnant drug users, with a consequential increase of expectation for support within health services. The increased dangers of abortion, pre-term delivery, foetal suffering, and Neonatal Abstinence Syndrome (NAS) are some of the known implications and have been described in the previous chapters.

Although different approaches have been used to deal with such a problem there is still a dearth of specialised units capable of dealing with this specific pregnant drug user and neonate population during the pre- and post-natal periods using a multidisciplinary perspective (Pandya 1997; IPDAN 1997; Fischer et al 1997).

We have described the type of solutions and arrangements provided in order to cope with this problem in several European countries. The previous chapters help us in understanding better what should be an ideal treatment model and what kind of pan-European guidelines and policies should take

place. The clinical experience of more of ten years in this area, allow us to point out some fundamental issues.

Multidisciplinary approach

Treatment needs a multidisciplinary approach and the basic assumptions on which this approach would work are based on staff not being judgmental and having realistic expectations (not entertaining magical solutions to drug addiction) with an open and flexible approach (Flores 1997).

It is also clear to us that only with good communication between the several services involved, by promoting the exchange of information, flexible and quick objective answers, and with a cohesive responsibility and mutual support between the different teams present will it be possible to intervene in a professional and efficient manner.

The team needs to establish and nurture a privileged relationship with the obstetric and paediatric services, social services, nannies, kindergartens, schools and courts, in order to make possible an eclectic and comprehensive care plan. It seems to us that through these assumptions the rates of morbidity and mortality during pre-natal delivery and infancy can be reduced.

The need to facilitate a clear focus in the caring institutions responsible for obstetrics, paediatrics, nursing, psychology, psychiatry, social services, ergotherapy, social entertaining staff and the judiciary will facilitate an inter-institutional articulation, allowing the rapid referral of the identified cases to the multidisciplinary team. This will make it possible for comprehensive assessment with identification of priority needs to be performed very quickly. This, in turn enhances compliance and subsequent attendance of the pregnant drug user at the services identified.

Periodical and frequent meetings between every service involved will allow a discussion that further enhances a realistic approach to the complex case and also provides opportunities to check the progress made and identify contingency plans if the particular case is not doing well.

The environment

The working environment needs to have proper facilities. An easily accessible and private place to cater for the client population and a large enough space to fulfil therapeutic activities are basic to the success of any intervention

The client

At first contact a full drug and alcohol use history with a comprehensive toxicological and other biological investigations need to be done. A pregnancy test, metabolite drug screen in urine, and bloodborne (hepatitis B & C and HIV) and V.D.R.L. serology are also minimal requirements.

After this first contact, the subsequent appointment should not exceed a week to enhance compliance and prevent stagnation to the complex organisational momentum needed to compile a treatment plan for the pregnant drug user who at that particular period in time might be experiencing a chaotic lifestyle. The therapeutic strategy will be delegated to nominated personnel who will act as co-ordinators for the case (doctor/psychologist/social worker).

The feeling toward pregnancy should not be discouraged (Flores 1997). Issues include: the abortion and adoption hypothesis; desire to mother the child; expectations towards treatment; the community network of the patient (giving special attention to the male progenitor); drug consumption patterns; eventual existence of legal problems; and anxiety related to delivery.

A great majority of the drug-addicted women that are in treatment services are heroin abusers and today it is unanimously recognised that the elective treatment for the mother/child dyad is methadone hydrochloride (Finnegan 1976; Shottenfield 1995). Treatment with a substitute narcotic may prevent subsequent infections caused due to infection (hepatitis, septicaemia, HIV) due to the high risk taking life-styles (venereal disease), and NAS (Flores 1997). Methadone is prescribed daily with a clear aim to control withdrawal symptoms and, hopefully the suspension of illegal drug use. The daily supervised consumption of methadone in the institution is an opportunity for the nursing staff to listen, counsel and confront issues.

An opiate detoxification programme is only advisable in the second trimester of pregnancy because during the other two trimesters there is a danger of abortion or of a pre-term labour (Iennarella *et al* 1986; Flores 1997). Contraindications include: severe psychiatric disorders; absence of a support network in the community; and difficulty in changing drug consumption patterns, that can be inferred by positive illicit drug analyses.

Pharmacological treatment should always be established in the context of a psychosocial intervention, either individual or in a group setting. The therapeutic relations with pregnant drug users are complex, based upon a conflict between the emotions present in an idealised mother, and the high risk-taking and provocative behaviour that is not consistent with their former image. The therapeutic threshold between a good and bad mother, from the attraction to rejection (more or less explicit) to the therapeutic team, is rather narrow especially if the team is not capable of understanding the meaning of relapses, non-compliance, lies, and manipulation.

Discussion groups make it possible to provide a safe non-judgmental haven where one can find mutual support, the unconditional sharing of experience, anguishes, joys and confrontations. Groups should also contain a paediatric aspect dealing with themes such as pregnancy and related physiological changes, the actual delivery, bathing, artificial nourishment (bottle-feeding), baby clothes, the possible meanings of crying, how to recognise NAS (initial and late) in the baby and how to cope with that. These issues also need to be made part of the therapy for every pregnant drug user in care.

One can also use other means to enhance an increase in self-esteem, confidence and parental skills. This can also include the use of complementary practices that might be associated with addiction services.

A therapeutic project needs a further adequate pre- and post-natal obstetric care, paediatric care and infectious disease assessments, in order to reduce perinatal and infant morbidity and mortality.

The social assessment of patients and identification of their social support network consistently shows with increasing frequency a low educational achievement, unemployment, income derived from illegal activities, and a drug addicted partner. Thus, we face a fragile system incapable of answering specific needs.

Social support is fundamental and many times will influence the intervention success. On such support will depend the answer to basic needs and children's integration with nannies, day nurseries or kindergartens, enlarging the social support network of the children and allowing the mother access to participation in such activities. An example of such programmes is the "Programa Vida Emprego" (Work and Life Programme) created in Portugal for the drug-addicted population.

The difficulty of using social and health organisations demands the extension of support from the team to the wider community. This includes visiting women during the internment periods in other hospitals (namely during delivery) and visiting and supporting her at home before and after delivery.

The family is another important area that should not be neglected. Clarifying the role of family members, defining educational input and support to this family, and allowing the extended family to support the mother/child dyad, without the need of substitutes, are all important aspects.

Family planning cannot be underestimated and experience has shown that the current pregnancy cannot be taken in isolation but can be the only time one has an opportunity to discuss family planning issues.

In our population we have also been confronted with situations where the abstinence of illicit drugs is a non-attainable goal. In such groups approaches with harm reduction objectives can and should be outlined.

The neonate and other children

The newborn that has been exposed to opiate drugs in the pre-natal period can present with NAS in the first hours of life. This demands constant observation and surveillance by clinicians aware of this adverse effect. Treatment includes using objective and quantitative questionnaires. Pharmacological intervention is complemented with other support measures, such as: a quiet room, a waterbed, subdued lighting, frequent feeding in small quantities and extra baths (IPDAN 1997).

It is important that the mother is adequately informed about the development of the syndrome and also has facilities to be near her baby. In the children of women on methadone treatment, the abstinence syndrome can occur at a later period imposing a larger surveillance period.

It is important to endow these mothers with skills to recognise and deal with these symptoms when they appear so as to allow an earlier discharge of these children to their biological mothers. This is a particularly sensitive period. The teams, who are faced with limited resources can feel obligated to opt for the child to be placed with other relatives, and not with the parents, or even in the care of an unrelated guardian. The decision should not be based on the history and type of illicit drugs used by the parent, but as a result of the presence of facts like neglect, abuse and potential violence, etc (IPDAN 1997). The decision to remove the child from the parents must be a contingency plan and a last resort.

Bottle-feeding is usually recommended for the drug-using mother. For those in methadone substitution treatment it must be monitored carefully.

A paediatric contribution to the overall management will enhance knowledge of the repercussions of drug use on the child's psychosocial development, as well as the ability to assess the general health status of the child. An important assistance with this assessment is home visits by the team, which permits direct contact with where daily care is taking place.

The existence within a service of a playroom with adequate personnel and baby-friendly equipment not only enhances compliance of the client with the therapeutic programme since children are welcomed and entertained during the absence of the mother but is it is also an ideal situation to assess the parenting skills of current or future mothers and their partners. This room, besides this function, is mainly useful for those women without support network or with a non-functional one, and it is also a privileged observational place for the babies, their development, physical condition, interaction patterns with other children and with their own mother. A video record, in the play period, of the child's interaction with the environment could be an important assistance in the assessment of psychopathology and in the delineation of therapeutic interventions.

The child that is at the moment the focus of our intervention is many times one of several children of our women and those must also be the subject of our concern. Thus, it is important to attempt to assess: birth register data form, vaccination calendar, attendance at the paediatric clinics, school situation and, when considered necessary, a request for the child-psychiatrist to help in a specialist assessment.

Conclusion

If drug addiction raises complex questions, the pregnant drug user can aggravate these questions, both in women, in the foetus and the newborn. This clinical reality must be taken into account by the health and social national governing bodies so that future policies should include in their plans care services for the pregnant drug user that are free of charge, accessible and efficient.

The approach needs to consider bio-psycho-social issues and the therapeutic model will be possible with disciplinary teams that establish close connections with other services in the community (Fischer *et al* 1997).

These services need to be available and informative through meetings, training, conferences and brochures so that it can contribute to a better reflection on the issues about pregnancy and drug use, and facilitate the identification of new patients. Resorting to street work units and a telephone help-line (IPDAN 1997), will allow a greater number of situations to be reached.

It will also be important to implement harm reduction approaches, for those who do not want or are not able to stop drug use (during the pregnancy and in the post-delivery period).

With the dearth of prospective outcome studies it is necessary to develop a research programme on this area, both at a national and pan-European level, which will allow a better knowledge of the drug use effects in the pre- and post-natal period and the ideal management and therapeutic approaches for such patients.

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Appendices

Appendix A Informed Consent Form (used by Department of Addictive Behaviour, Bergamo)

This is to declare that as defined by law (CPP art.200, DPR 309/90 art.120, L. 675/96) I permit DAB workers to use my data (address, personal data, health status, therapies) and to inform the following people if necessary:

- Parents
- Relatives
- Other public or private services workers
- Others (specify) _____

Surname _____ Name _____

Date of birth _____ Place of birth _____

City _____ Street _____ No _____ Post Code _____

Phone number _____

Date _____ Signature _____

N.B. If a patient denies this consent, DAB can provide information only to guarantee pharmacological therapies or hazardous health situations (i.e. allergy)

Appendix B Pregnancy data sheet

Name: _____ DOB: _____

Address: _____ Id. No.: _____

Doctor: _____ Consultant: _____

Gravida: ____ Para: ____ LMP: ____ / ____ / ____ Diagnosis Date: ____ / ____ / ____

EDD: ____ / ____ / ____ Dates on Booking: ____ / 40 Fundus on Booking: ____ / 40

Not Palpable on Booking: _____ No. of visits to ANC: _____

Delivery Date: ____ / ____ / ____ Dates on Delivery: ____ / 40

Mode of Delivery:

normal vaginal ____ assisted vaginal ____ planned caesarean ____ urgent caesarean ____

Obstetric Complications: Breech Presentaion _____ Amnionitis _____

Spontaneous Abortion _____ Threatened Abortion _____ I.U.G.R. _____

Placenta Preavia _____ Pre-eclampsia _____ Foetal Distress _____

Premature Rapture _____ Intrauterine Death _____ Anaemia _____

Gestational Diabetes _____ Premature Labour _____ Depression _____

Placental Abruptio _____ Retention of Placenta _____

Relationship:

Married: yes ____ no ____ Cohabiting: yes ____ no ____ Single: yes ____ no ____

Father known: yes ____ no ____

Support during pregnancy:

None ____ Partner (father) ____ Partner (not father) ____ Family ____ Institution ____

Risk Behaviours during pregnancy:

Number of partners ____ Unprotected sex: yes ____ no ____

Parenteral use: yes ____ no ____ Needle sharing: yes ____ no ____

Investigation during pregnancy

	Date:		Date:		Date:		Date:	
Hgb. (gm/L)	Normal	Low	Normal	Low	Normal	Low	Normal	Low
ALT (U/L)	Normal	Low	Normal	Low	Normal	Low	Normal	Low
G-GT (U/L)	Normal	High	Normal	High	Normal	High	Normal	High
RBG (mmol/L)	Normal	High	Normal	High	Normal	High	Normal	High
HIV	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
HCV	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
HBV	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
VDRL	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.
Blood Gp.								

ULTRASOUND (U.S)

Date	Dates (/40)	U.S. (/ 40)
/ /		
/ /		
/ /		
/ /		
/ /		

CARDIOTOCOGRAM (C.T.G.)

Date	RESULT	
/ /	Normal	Abnormal

_____ / _____	Normal _____	Abnormal _____
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Non-prescribed drugs used during pregnancy

	1st trimester		2nd trimester		3rd trimester	
Alcohol	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Tobacco	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Benzodiazepines	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Cannabis	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
XTC	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
LSD	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Heroin – smoked	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Heroin – iv.	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Cocaine – sniffed	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Cocaine – smoked	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Cocaine – iv.	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____
Amphetamines	Yes _____	No _____	Yes _____	No _____	Yes _____	No _____

Prescribed medication during 1st Trimester

	↑ est dose			Increase	Decrease
Methadone	Less than 40	40 to 60	More than 60	Yes _____ No _____	Yes _____ No _____
Benzodiazepines	Therapeutic Dose _____ Over therapeutic Dose _____			Yes _____ No _____	Yes _____ No _____

Prescribed medication during 2nd Trimester

	↑ est dose			Increase	Decrease
Methadone	Less than 40	40 to 60	More than 60	Yes _____ No _____	Yes _____ No _____
Benzodiazepines	Therapeutic Dose _____ Over therapeutic Dose _____			Yes _____ No _____	Yes _____ No _____

Prescribed medication during 3rd Trimester

	↑ est dose			Increase	Decrease
Methadone	Less than 40	40 to 60	More than 60	Yes _____ No _____	Yes _____ No _____
Benzodiazepines	Therapeutic Dose _____ Over therapeutic Dose _____			Yes _____ No _____	Yes _____ No _____

Toxicology

Appendix C

Special Care Baby Unit

NEONATAL ABSTINENCE SCORING SYSTEM

Finnegan Abstinence Score

System	Signs and Symptoms	Score	A		M		P		M		Comments	
												Daily Weight:
Central Nervous System Disturbances	Excessive high pitched (or other) Cry Continuous high pitched (or other) Cry	2 3										
	Sleeps < 1 hour after feeding Sleeps < 2 hour after feeding Sleeps < 3 hour after feeding	3 2 1										
	Hyperactive Moro Reflex Markedly Hyperactive Moro Reflex	2 3										
	Mild Tremor Disturbed Moderate-Severe Tremors Disturbed	1 2										
	Mild Tremor Undisturbed Moderate-Severe Tremors Undisturbed	3 4										
	Increased Muscle Tone	2										
	Excoriation (Specific Area)	1										
	Myoclonic Jerks	3										
	Generalized Convulsions	5										
Metabolic Vasomotor Respiratory Disturbances	Sweating	1										
	Fever < 101 (99-100.8 F / 37.2 – 38.2 C) Fever > 101 (38.4 C and higher)	1 2										
	Frequent Yawning (> 3-4 times/interval)	1										
	Mauling	1										
	Nasal Stuffiness	1										
	Sneezing (> 3-4 times/interval)	1										
	Nasal Flaring	2										
	Respiratory Rate > 60/min Respiratory Rate > 60/min + Retractions	1 2										
Gastro Intestinal Disturbances	Excessive Sucking	1										
	Poor Feeding	2										
	Regurgitation Projectile Vomiting	2 3										
	Loose Stools Watery Stools	2 3										
TOTAL SCORE												
INITIAL OF SCORER												

Neonatal Abstinence Scoring System Observation, Scoring and Medication Procedure.

Scoring procedure

1. **Awaken baby.** The infant should be awake to elicit behaviour to be scored. If the infant requires awakening, the infant should not be scored for diminished sleep after feedings.
2. **Observe and score** the listed withdrawal symptoms seen during the entire observation interval not just at a single point in time.
3. **Total all scores** at the bottom of the chart. Proceed with the action accordingly.
4. If the infant is crying excessively, the infant must be quieted before scoring muscle tone, respiration and Moro reflex.
5. **Respirations** are counted for one full minute.
6. Beside **high-pitched cry**, even prolonged crying should be scored.
7. If the infant is **sweating** due to swaddling, a point for sweating should not be given.

Scoring system and medication

1. Initial assessment at **2 hours** after birth then every **3-6 hours** afterwards according to score; or 6 hours after withdrawal from long term sedation.
2. **Medication** is considered when an infant **scores 8 or higher for 3 consecutive scoring intervals**.
3. Infants with a rapidly falling score should be monitored closely for other serious medical conditions (such as sepsis, meningitis, hypoglycaemia, hypocalcaemia) or overmedication.
4. If score is 8 or higher, 3 hourly scoring is continued until score is < 8,
5. If score is 7 or less for 24 hours then 6 hourly scoring is started.
6. Infants with scores equal or less than 7 should be scored 6 hourly for 4 days.
7. Withdrawal of medication can be considered when score is < 8, infant consoles easily, rhythmic sleep and feeding intervals and shows steady weight gain.
8. Infants should be nursed in a supportive environment.

Supportive Environment Procedure

This includes:

1. Decrease stimulation from noise, speaking, radios and lights near infant.
2. Avoid talking during feeding to decrease stimuli.
3. Swaddling
4. Dummies for excessive sucking.
5. Nasal suction as needed for excessive nasal secretions.
6. Frequent nappy changes as needed to protect the skin from rashes and skirt breakdown.
7. Soft sheets or other devices to decrease skin irritation (excoriation).
8. If vomiting is a problem, position on right side or prone to protect from aspiration.
9. Protect from face scratching by mitten cuffs.
10. Demand feeding if weight patterns an issue.
11. Minimal handling
12. Cluster care to decrease stimulation (for example: once one starts taking TPR, one can change nappies, position, take observations and give feed.)

Management Protocol for Infants with Opiate Withdrawal Syndrome.

1. Unless there is an indication for admission to the Neonatal and Paediatric Intensive Care Unit (NPICU), these babies are monitored in the Nursery using the "Drug Withdrawal Chart" every 4 hours.
2. **NALOXONE IS VERY DANGEROUS FOR THESE BABIES AND CAN PROVE FATAL**
3. Transfer to the NPICU is indicated if the withdrawal score is 8 or more on 3 successive occasions, or if the score is rising rapidly.
4. Scores of 8 or above require treatment as follows:
 - for heroin/morphine withdrawal use morphine
 - for methadone withdrawal - use methadone
 - other measures:
 - always nurse baby on apnoea mattress
 - consider other problems e.g. hypoglycaemia, polycythaemia, sepsis
 - when jittery: check blood glucose, Ca, Mg
5. Duration of monitoring for the possible onset of withdrawal:
 - cocaine - 5 days minimum
 - opiates - 14 days minimum
6. Dosage schedule:
 - **METHADONE:** 0.1 mg/kg orally every 6 hours; increase by 0.05 mg/kg until score drops below 8. (Dose range 0.4 - 1.2 mg/kg/day). After 24 hours the total daily dose is given in two doses 12 hours apart.
Dose reduction: reduce by 10 - 20% each day so long as scores are below 8 till 0.05 mg per dose is reached. Final reduction is by 0.005 mg per day. Observe the baby for 72 hours after stopping treatment before sending home. Always inform Social Worker. Babies are NEVER sent home on opiate treatment.
 - **MORPHINE:** 0.04 mg/kg* orally every 4 hours, increasing by 0.02 mg/kg per dose until control is achieved. Divide the total daily dose in 2 doses 12 hours apart.
Dose reduction: reduce by 10 - 20% each day so long as scores are below 8. Stop treatment when dose reaches 0.02 mg/kg day (or 0.01 mg/kg/dose). Observe for 48 hours following discontinuation of therapy.
7. **Treatment of Seizures caused by opiate withdrawal**
 - MORPHINE: 0.1 S mg/kg iv/im followed by maintenance therapy.
 - Always think of other possible causes of seizures
 - Continue apnoea monitoring

This protocol is adapted from the 1997 protocol on "Management of Baby Born to Drug-Misusing Mother" issued by the Neonatal Unit, St. Mary's Hospital, London W2.

* Use the iv/im preparation

Appendix D Information concerning newborn**Gender:**

Male: _____

Female: _____

Birth weight:

less than 1kg _____ 1 to 1.5kg _____ 1.5 to 2kg _____

2 to 2.5kg _____ 2.5 to 3kg _____ over 3kg _____

Need for admission to SCBU:

Yes _____ No _____

Need for treatment for opiate abstinence syndrome:

Yes _____ No _____

Medication used for opiate abstinence syndrome:

methadone _____ chlorpromethazine _____

phenobarbital _____ morphine _____

Weight on discharge from hospital:

2 to 2.5kg _____ 2.5 to 3kg _____ 3 to 3.5kg _____

3.5 to 4kg _____

Comments:
